



BLENDER – modeling and texturing

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agenda



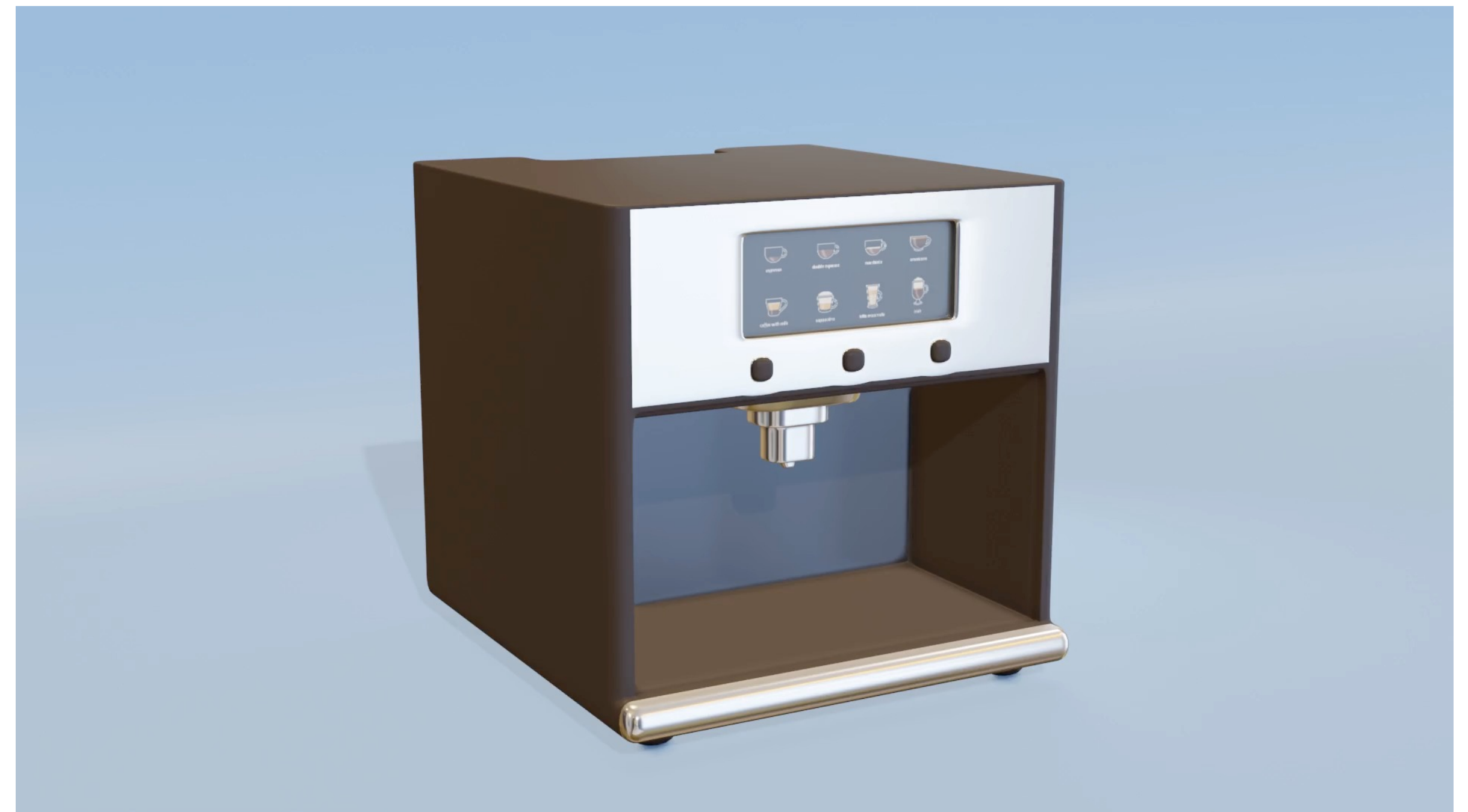
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Plan for today

- 3D model – coffee cup
- 3D model – coffee
- 3D model – coffee machine
- creating and applying materials
- texturing





coffee cup



coffee machine



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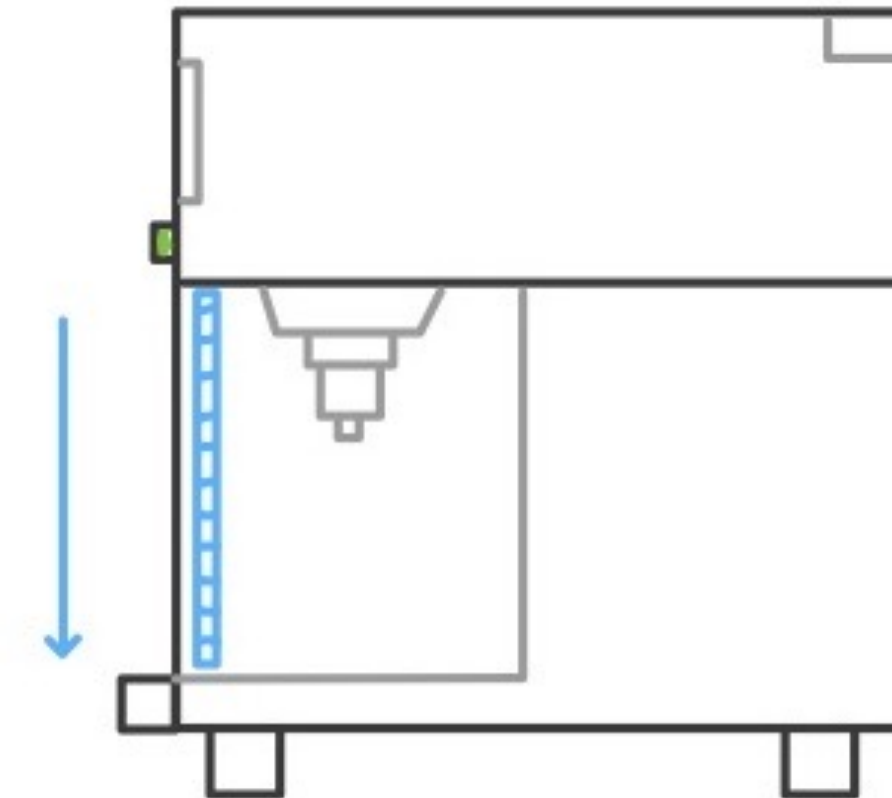
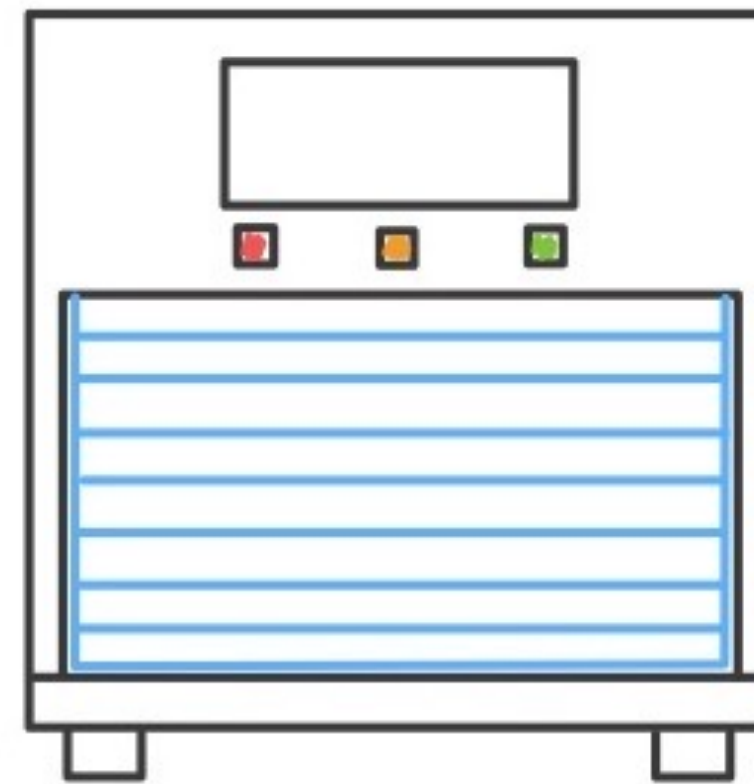
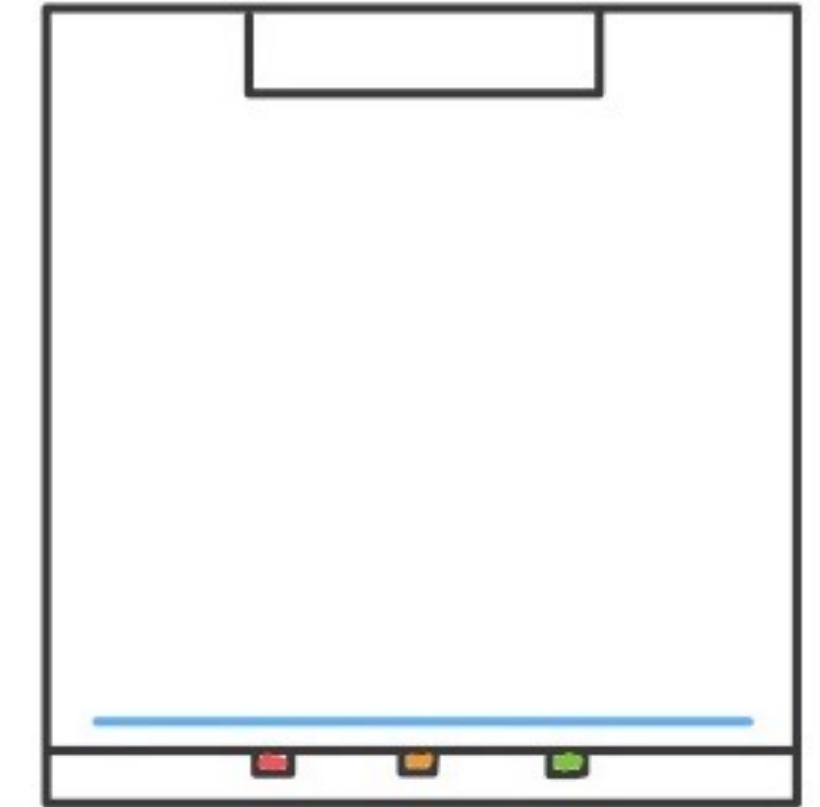
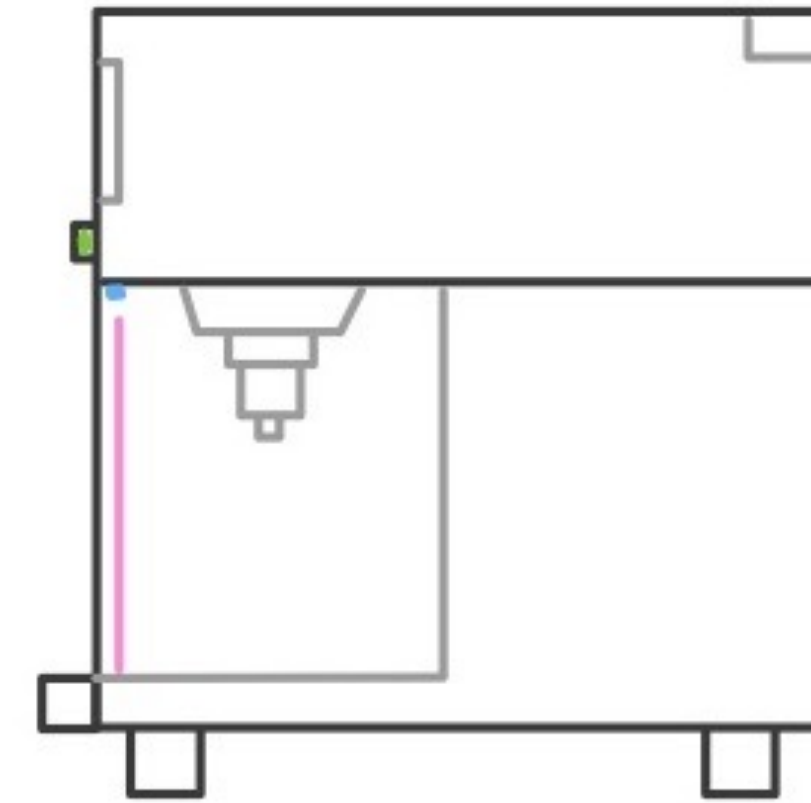
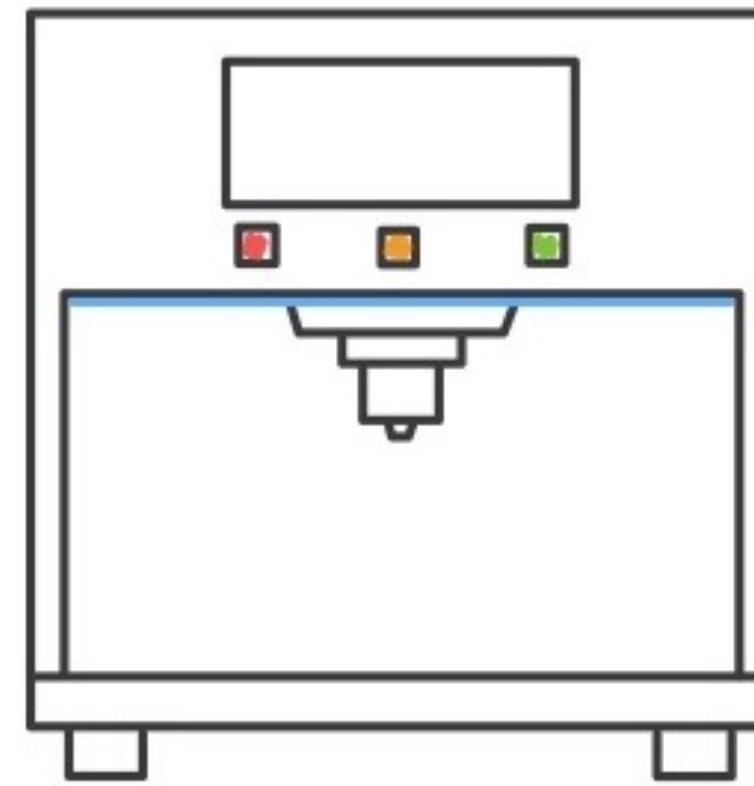


3D model creation

- pick what you want to make *and find some reference images of it*
- create the basic outline without any details
- add loop cuts for additional geometry
- add details and small shapes



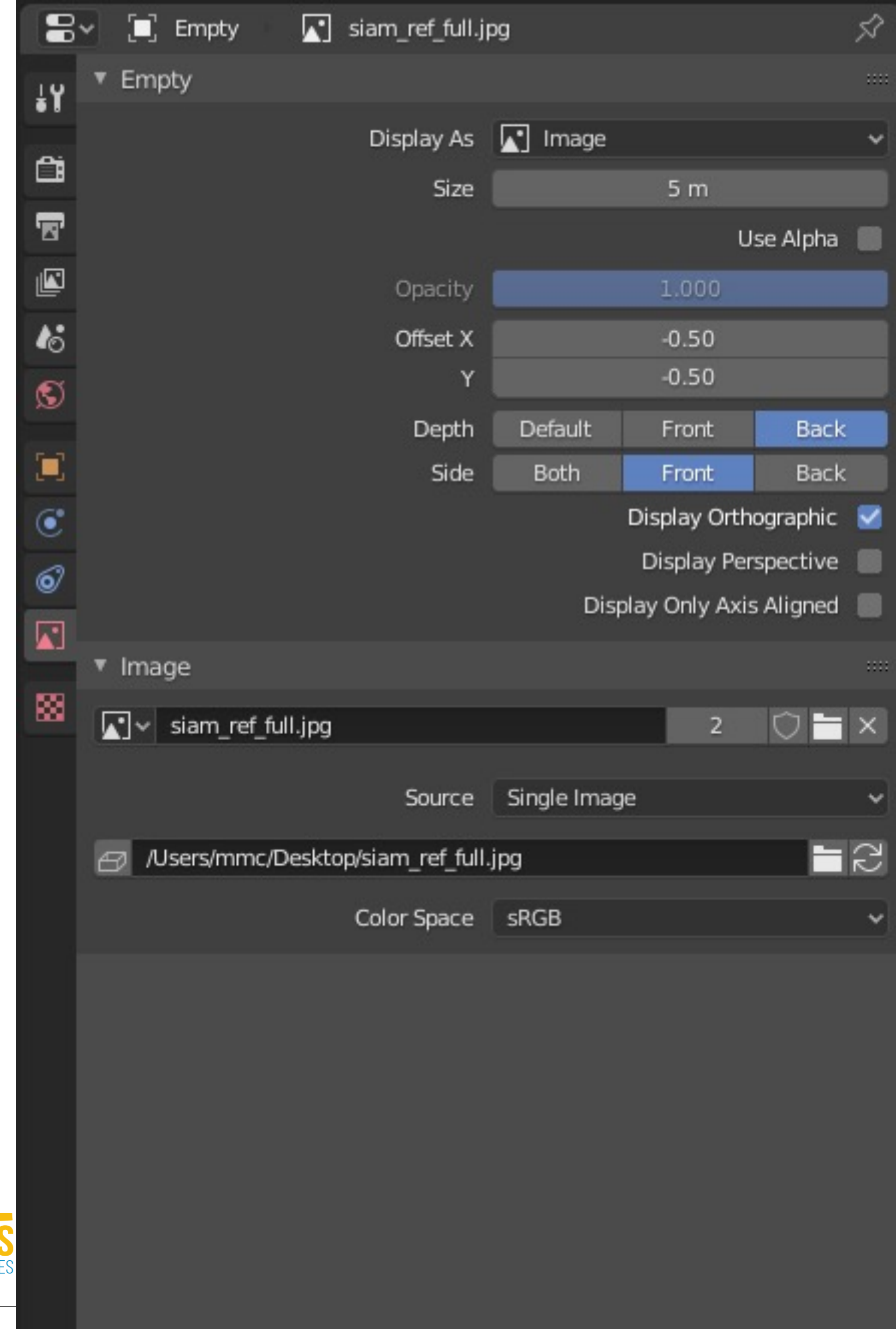
Coffee machine references





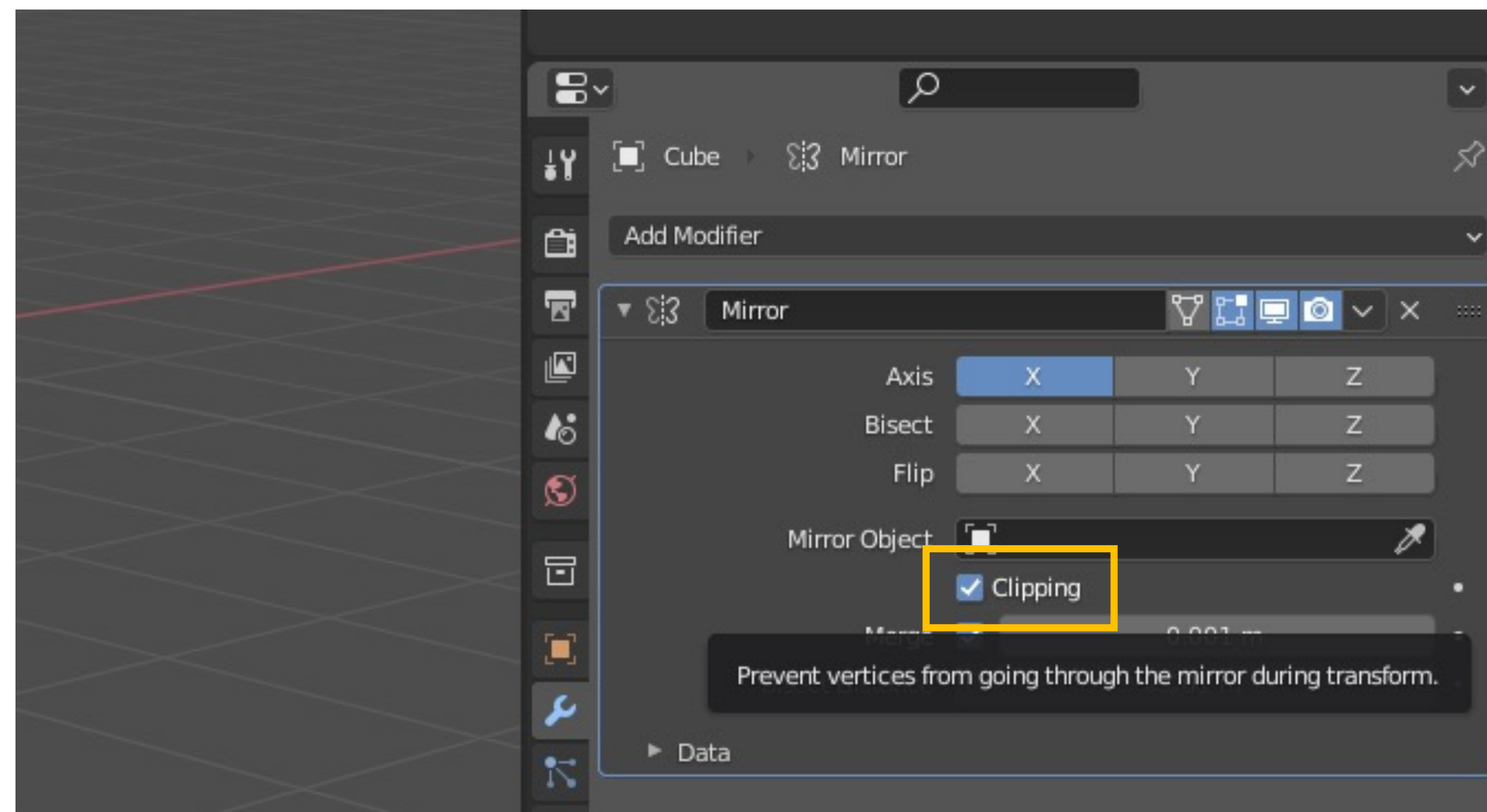
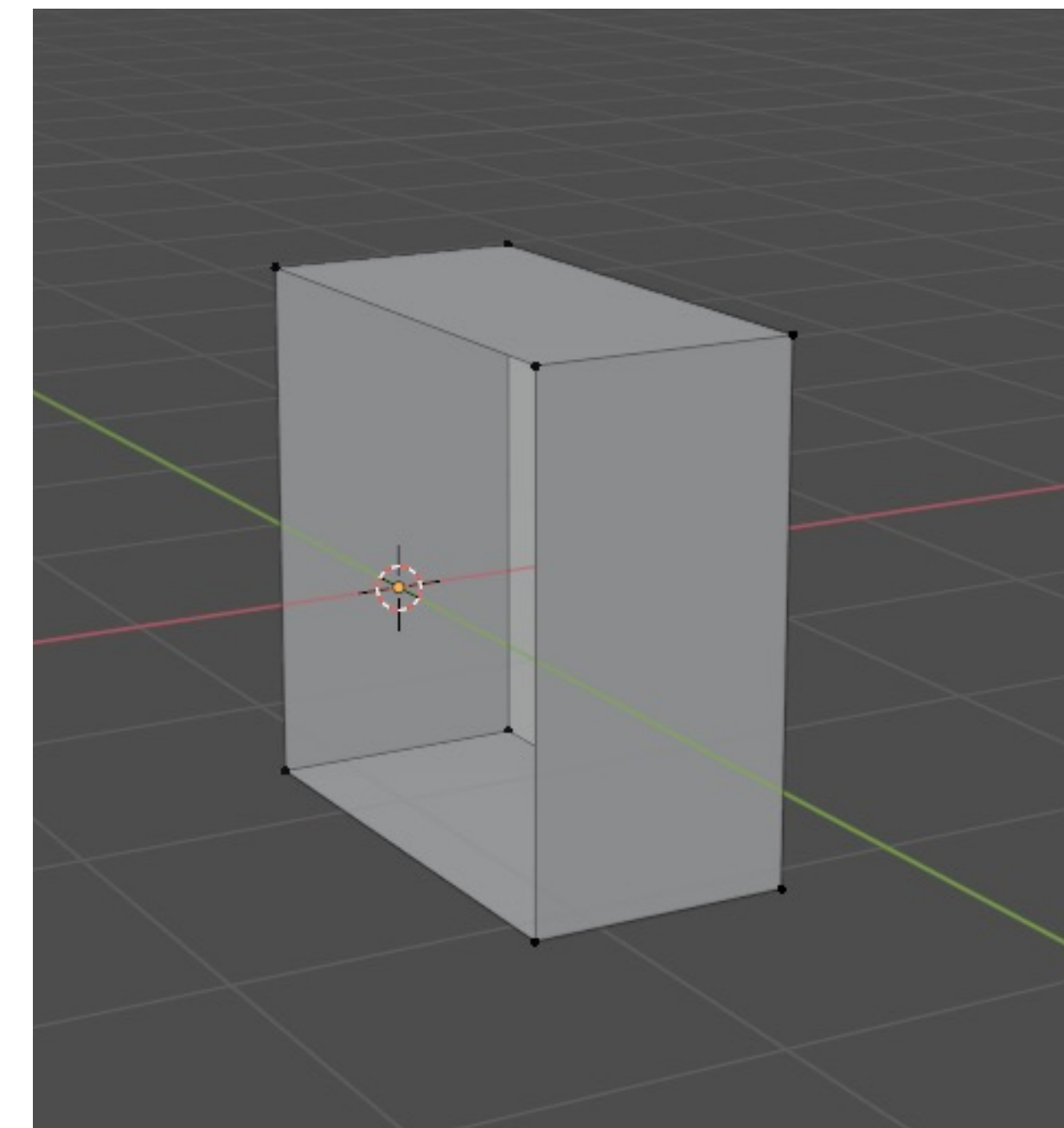
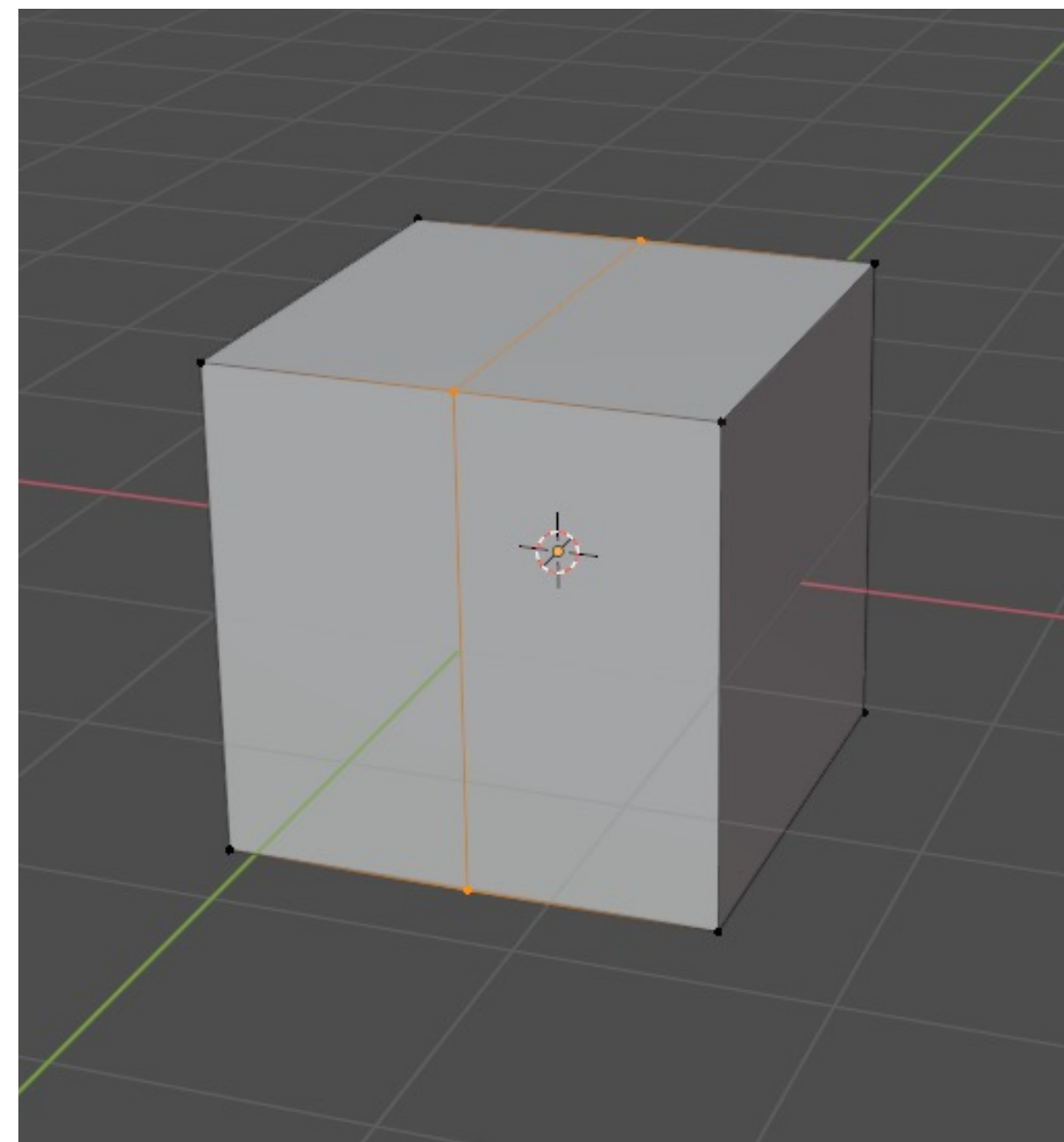
Reference images

- help you create 3D models
- right proportions
- **shift+A > image > background** to add new reference image
- add to front view (1) and side view (3)
- *alternatively:* drag&drop image



Mirroring

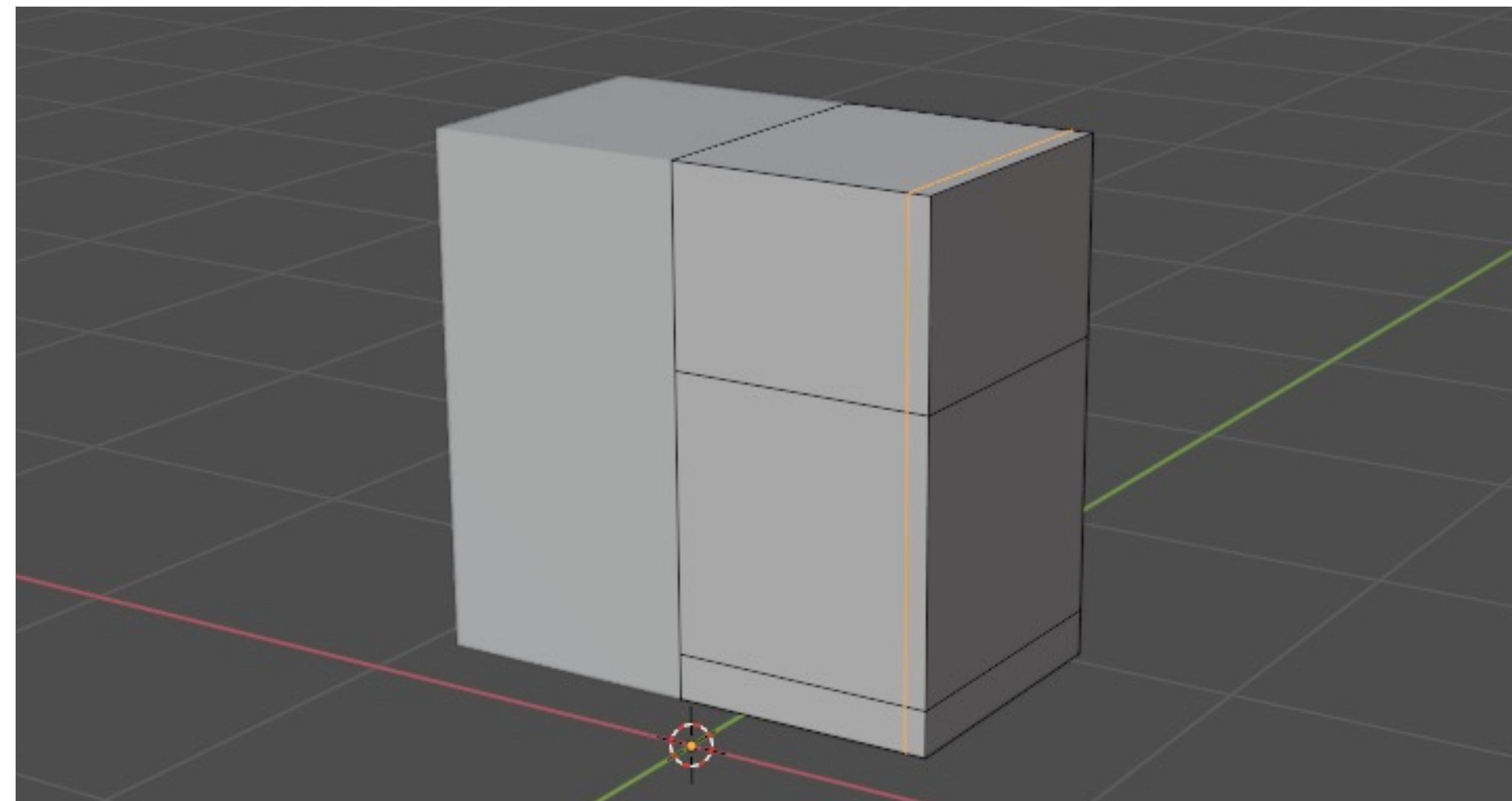
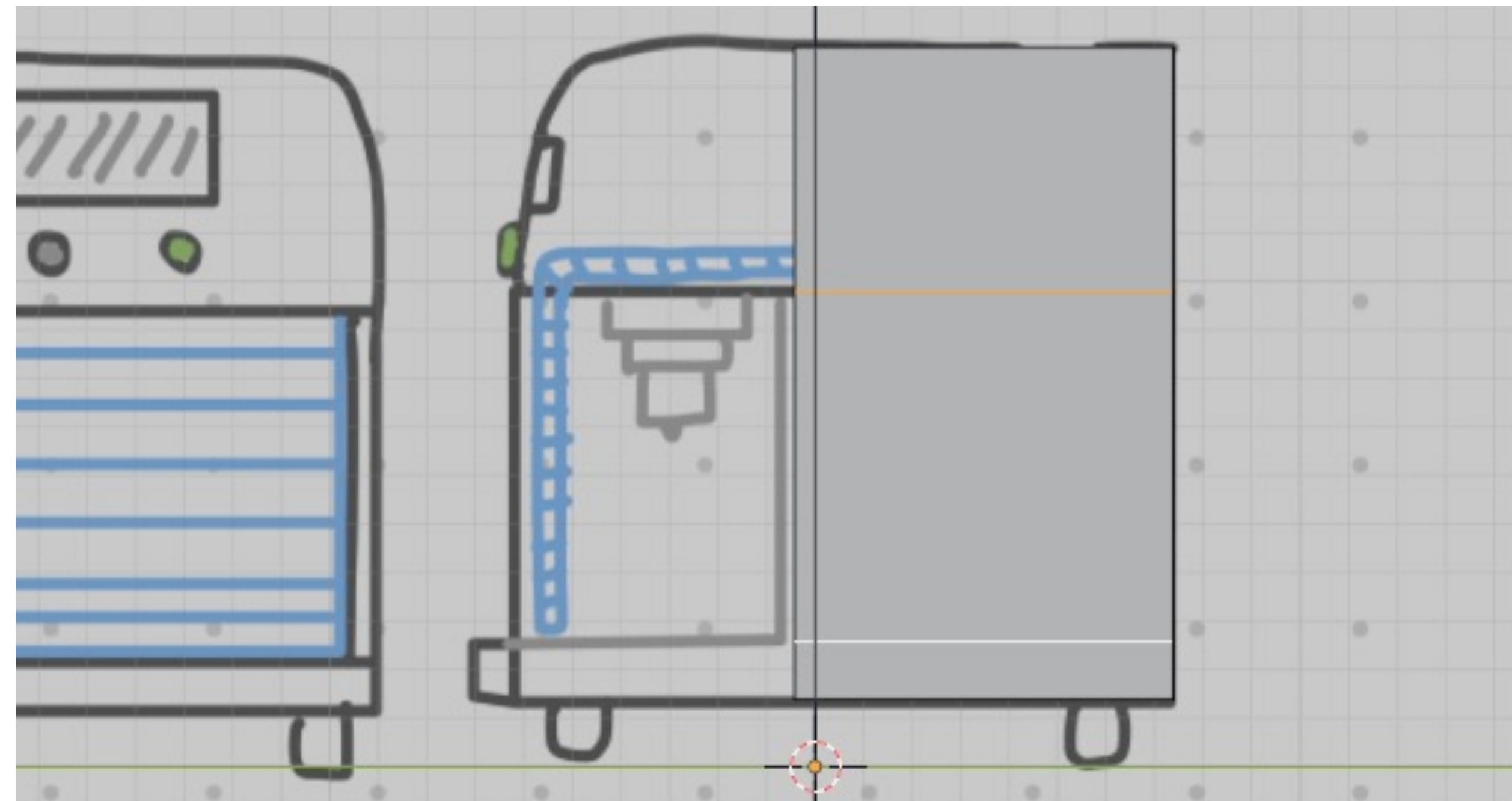
- simple cube
- adding mirror modifier
 - *only modeling one side*
- process:
 - **CTRL + R** = loop cut
 - delete left side of the cube
 - modifiers => mirror modifier
 - turn on clipping





Base shape

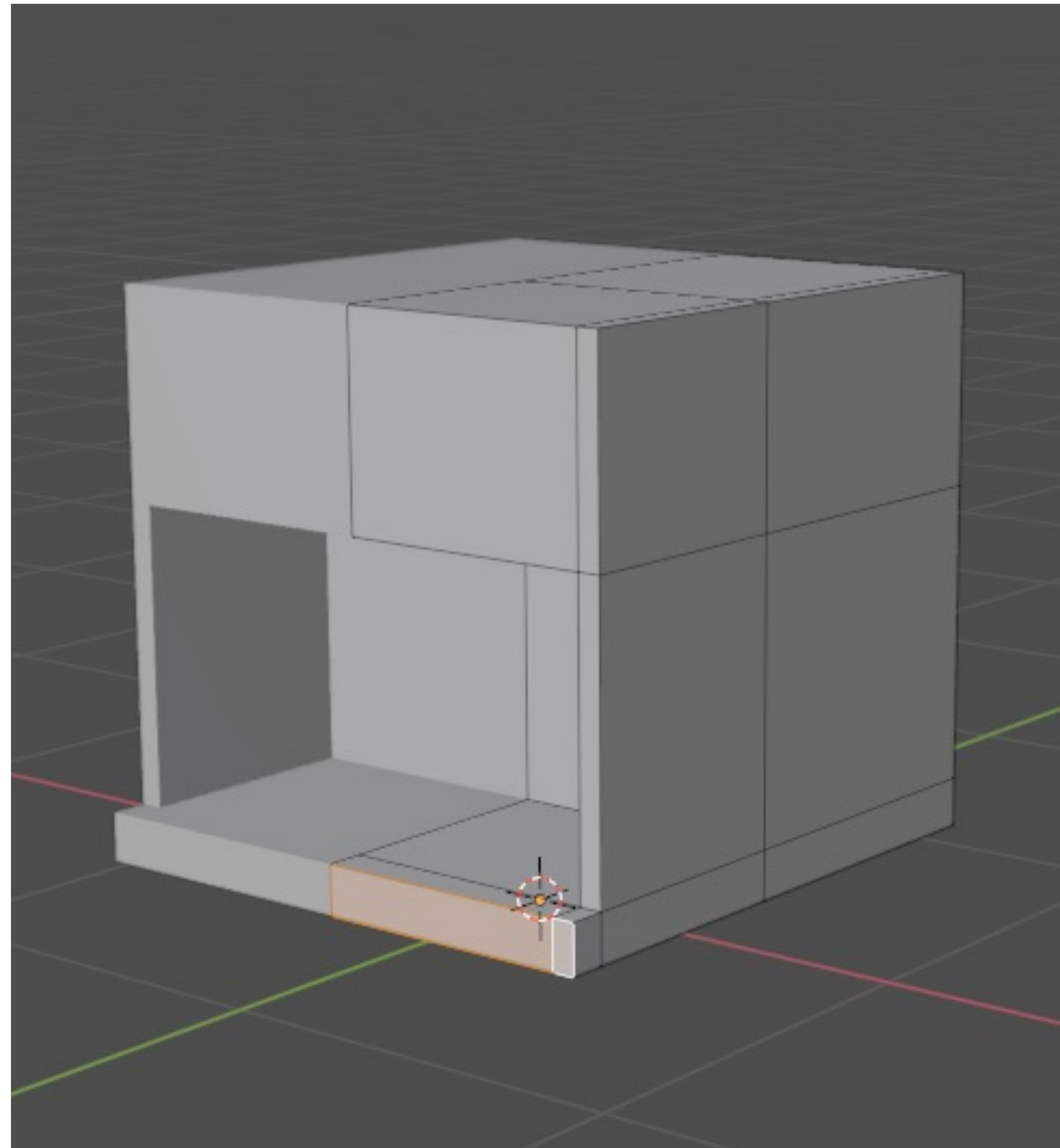
- back side of the coffee machine
 - fit width and height
 - create base outline
 - add 2 horizontal loops
 - add 1 vertical loop
- **SHIFT + click** = selection
- **CTRL + R** = loop cut





Base shape

- select faces to extrude => creating the inside of the machine
- select bottom faces and extrude again
- **3** = face selection mode
- **E** = extrude





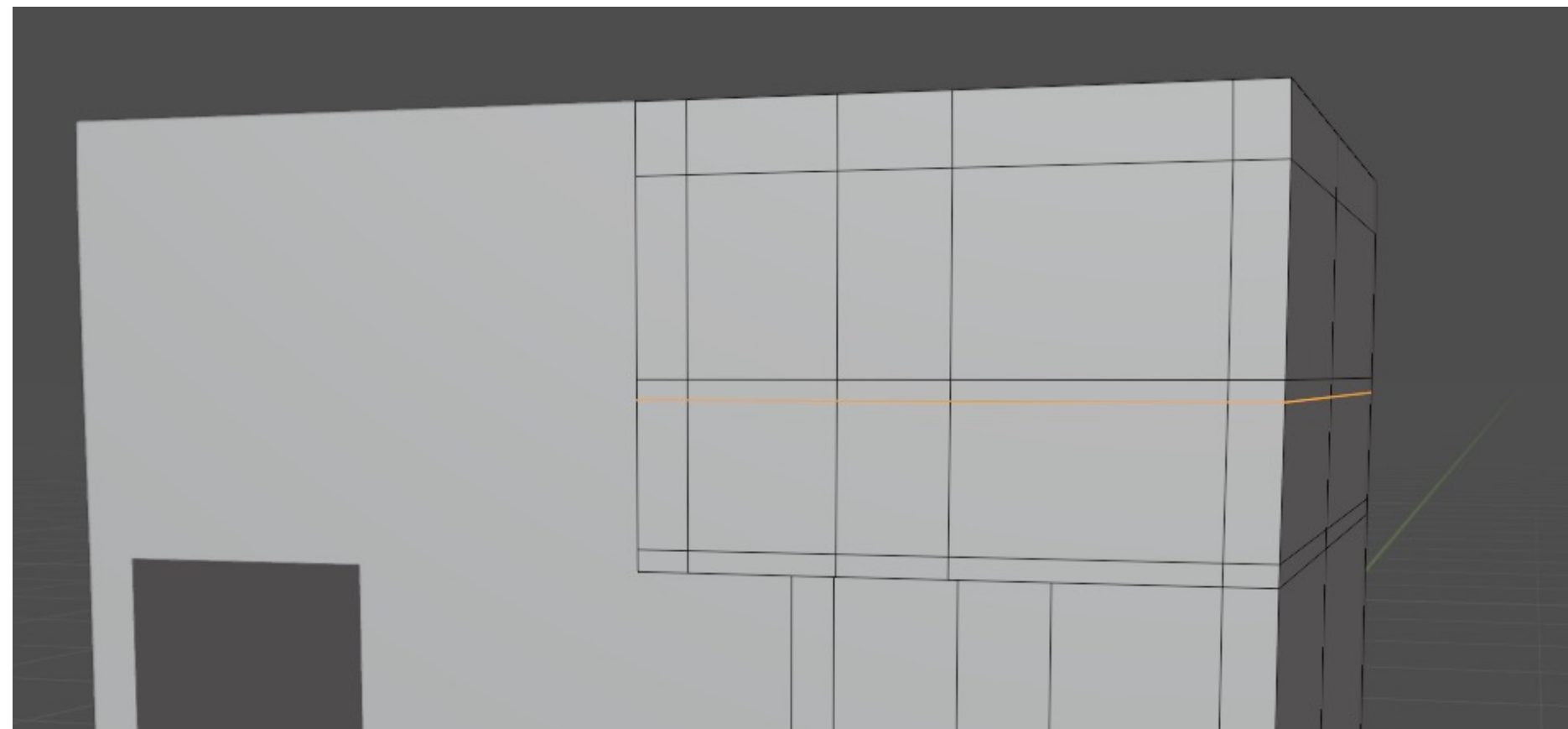
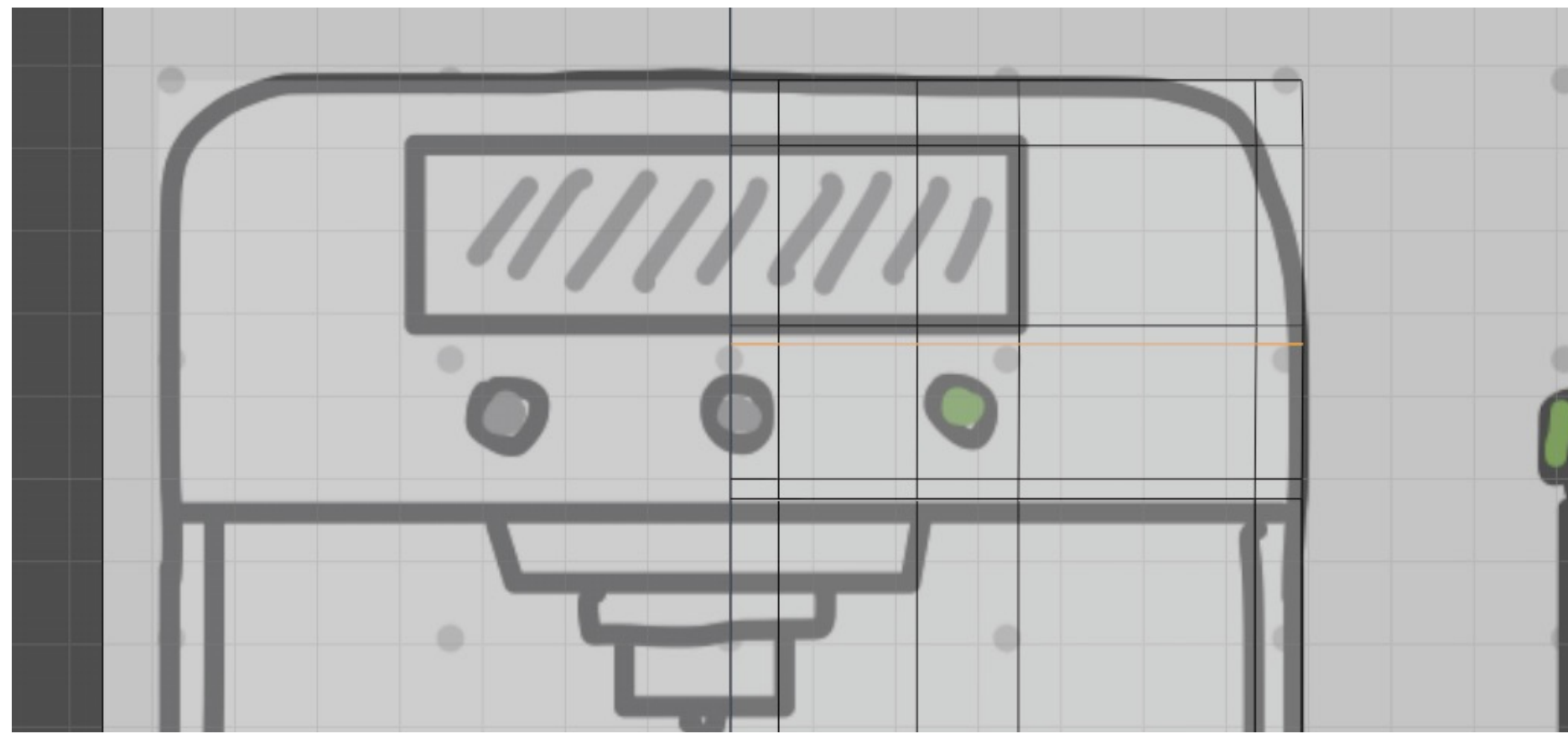
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LMME

Screen

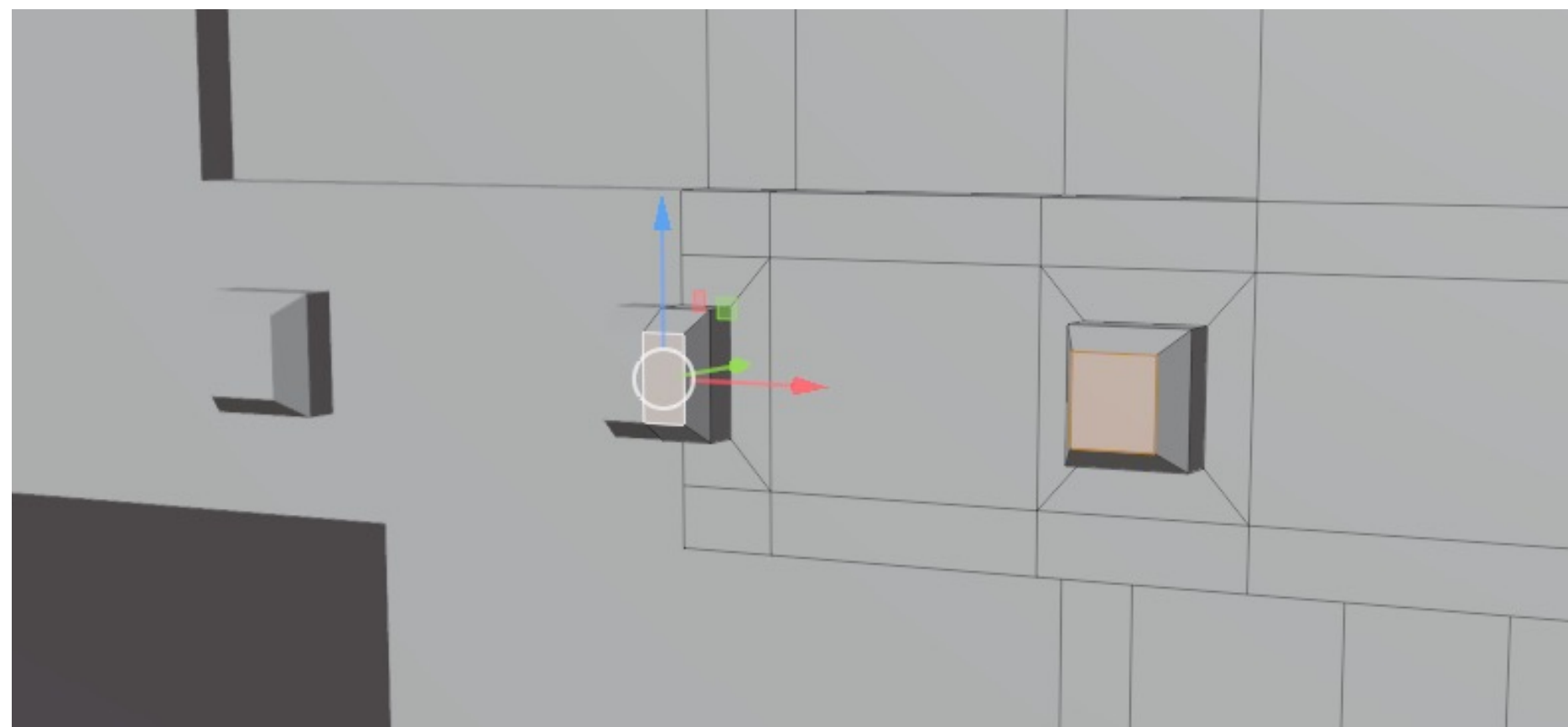
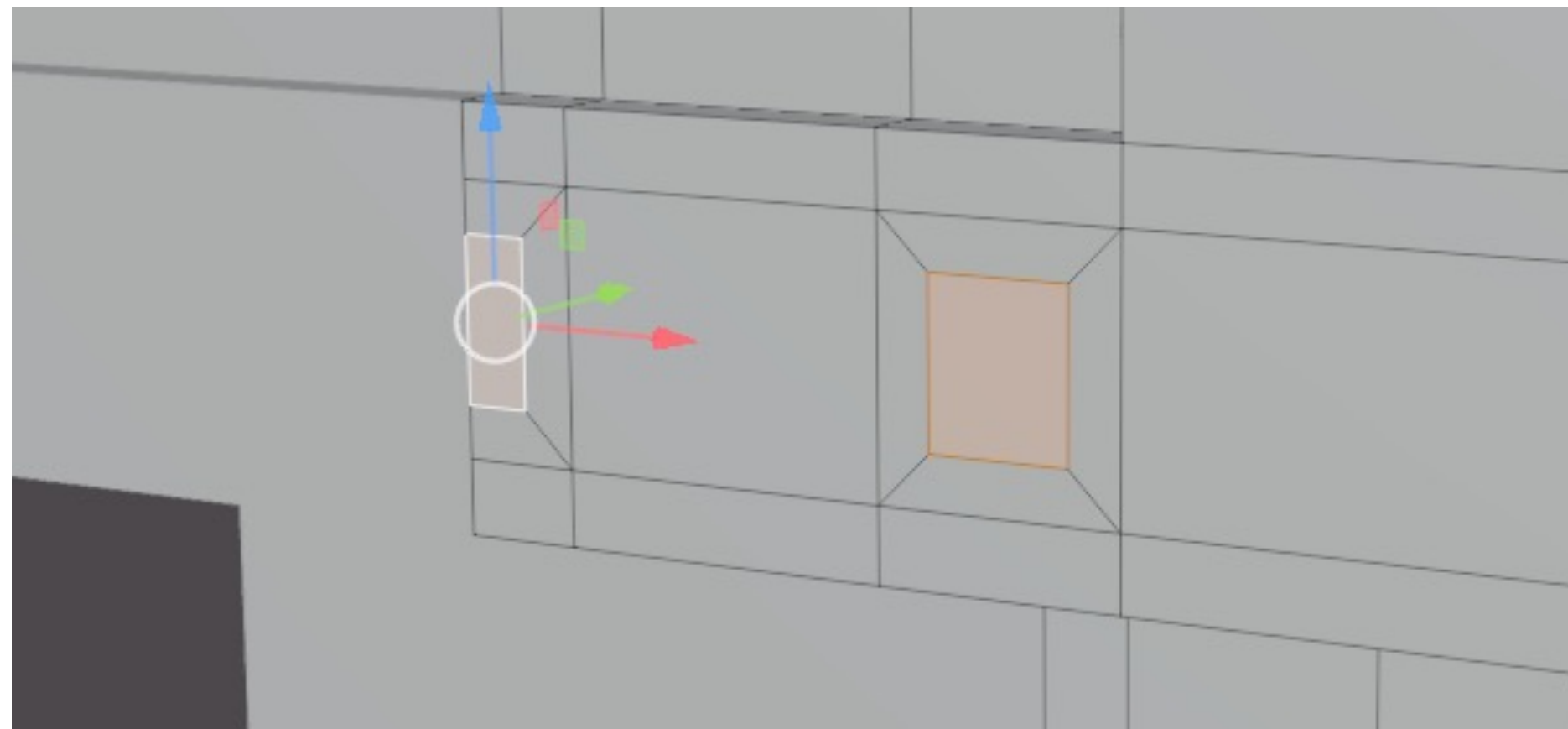
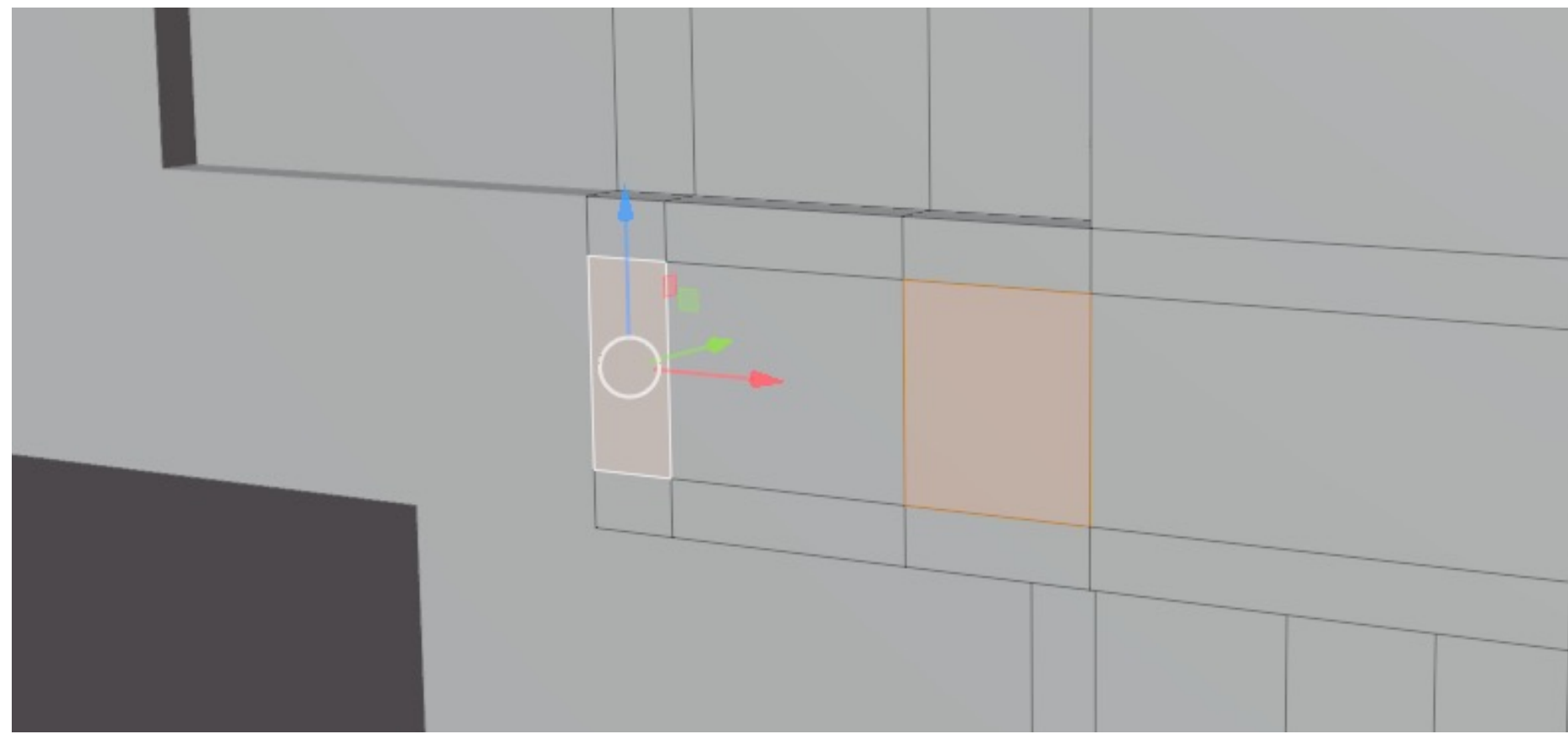
- prepare area for screen by adding loop cuts
- select faces where the screen is
- extrude faces inside
- **SHIFT + click** = multiple selection
- **CTRL + R** = loop cut
- **E** = extrude





Buttons

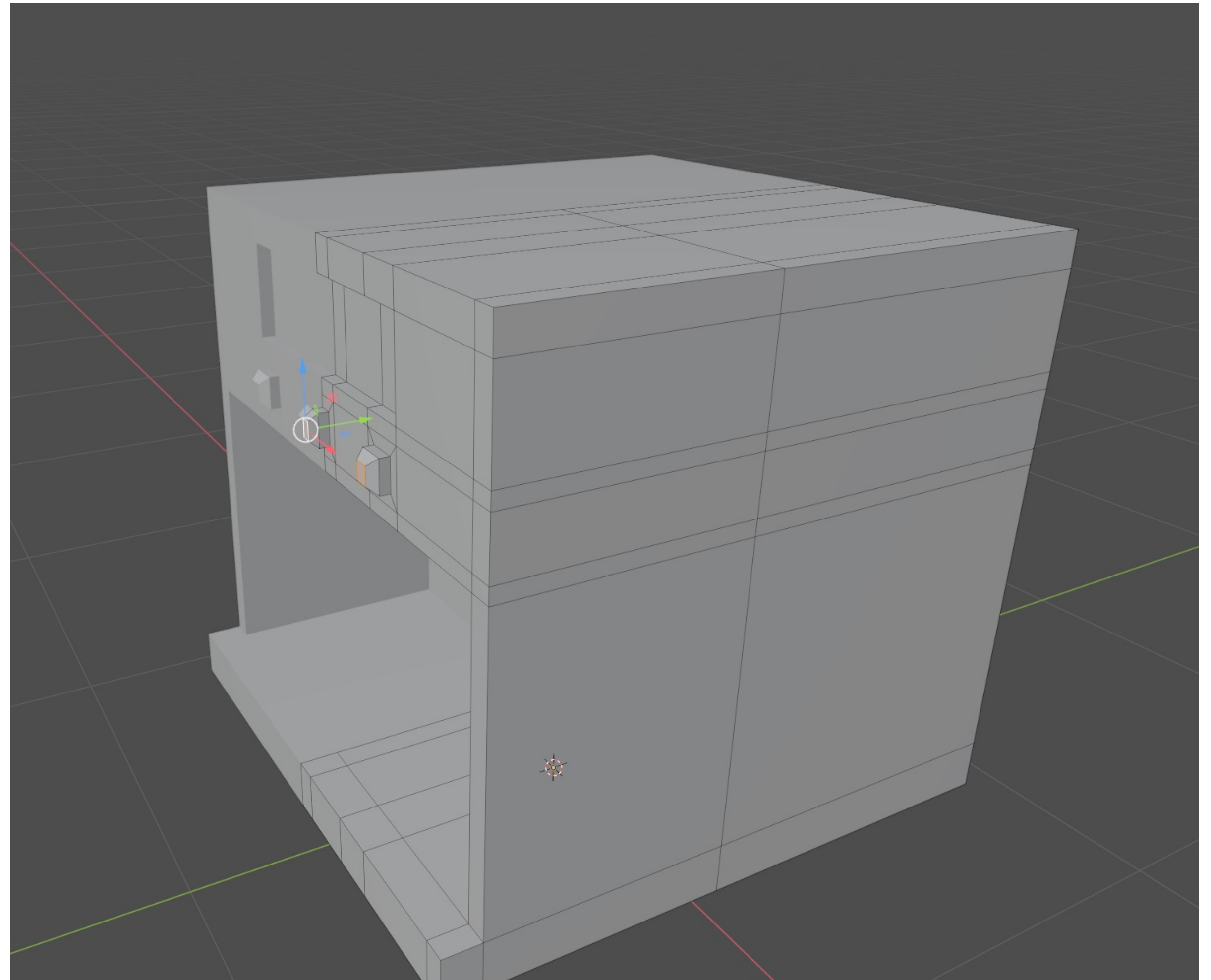
- prepare edge loops for buttons
- select faces where the buttons will be
- inset faces, then extrude out
- **CTRL + R** = loop cut
- **E** = extrude
- **I** = inset



Checkpoint

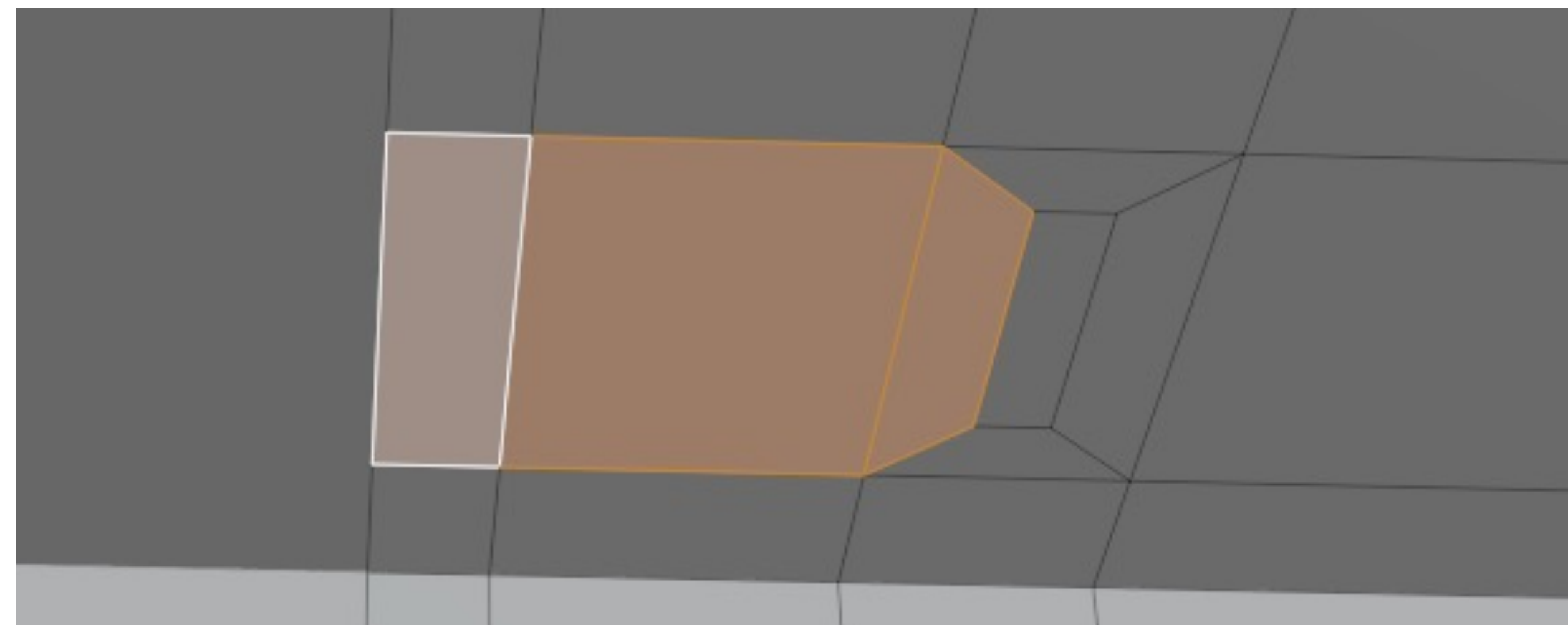
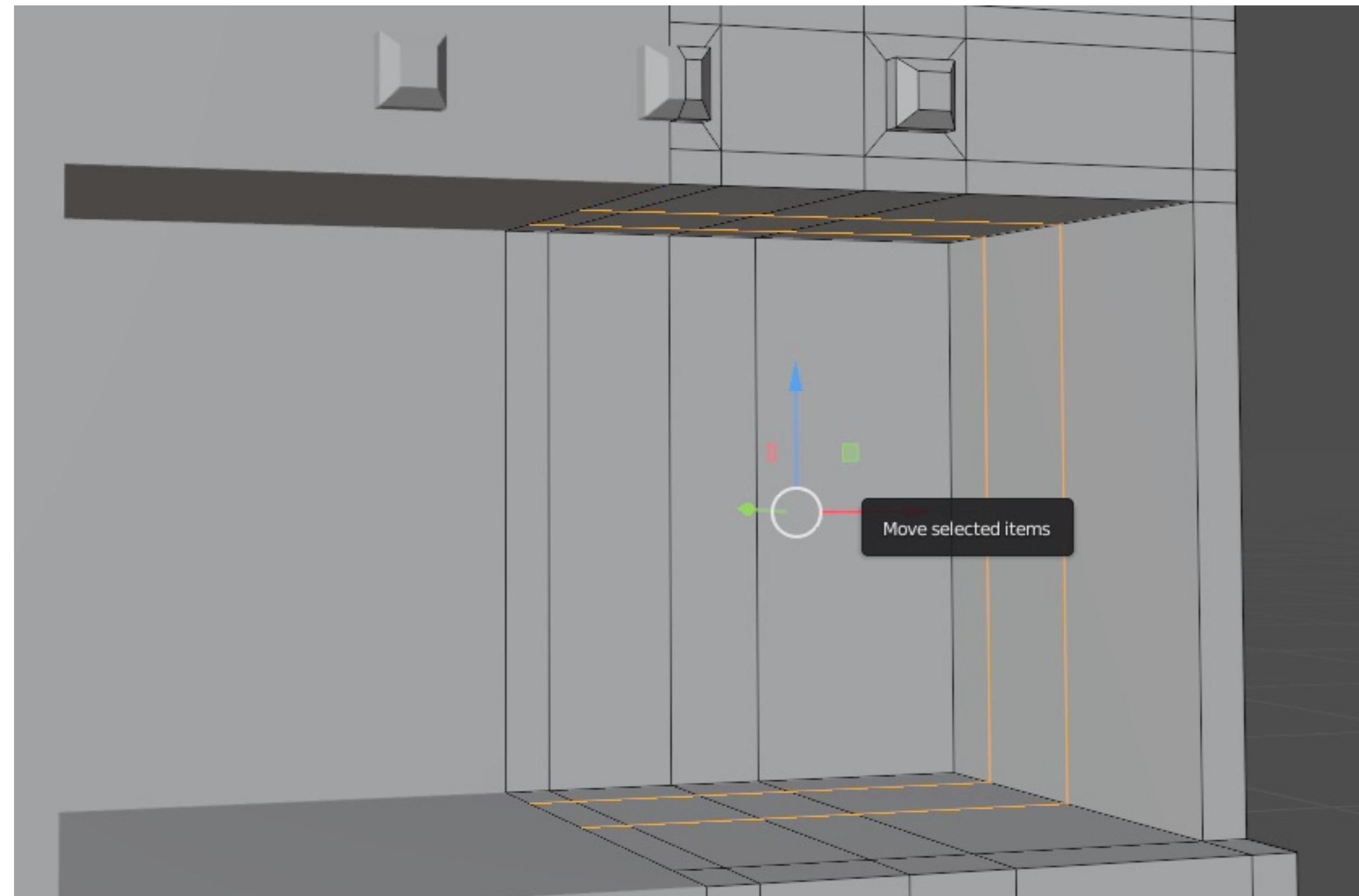
what you should have by now:

- mirror modifier
- base outline of coffee machine
- screen
- three buttons



Coffee outlet

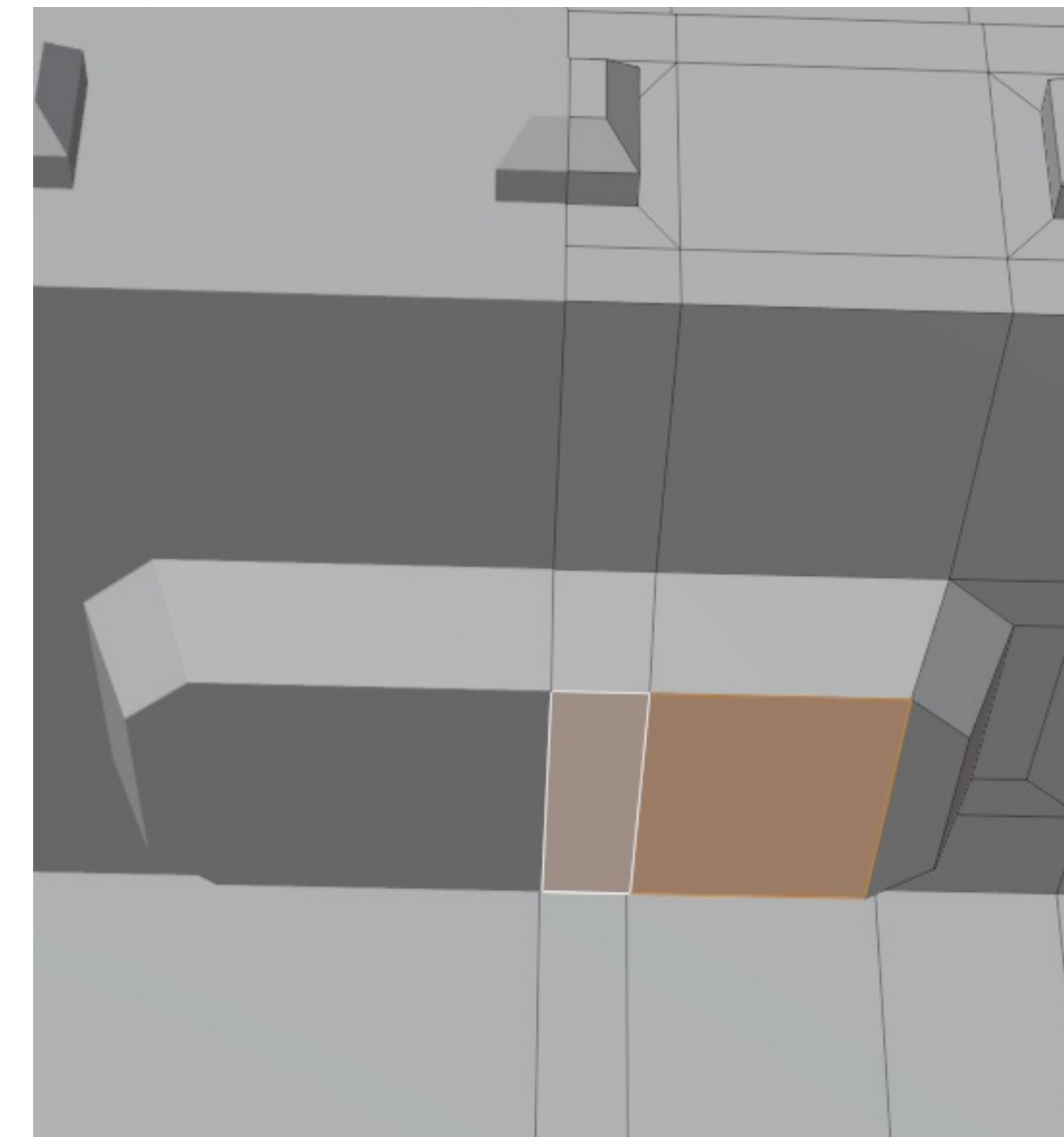
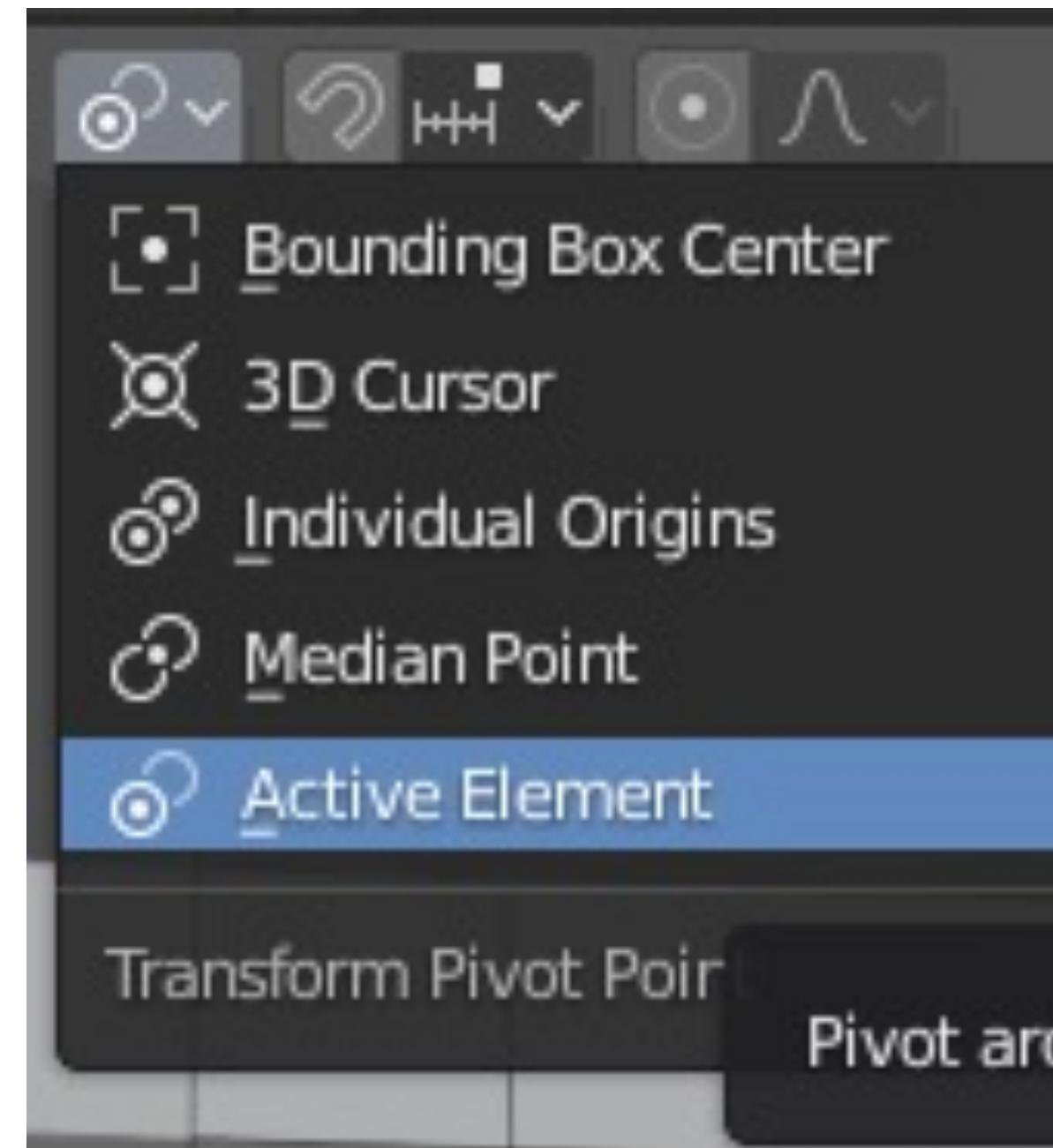
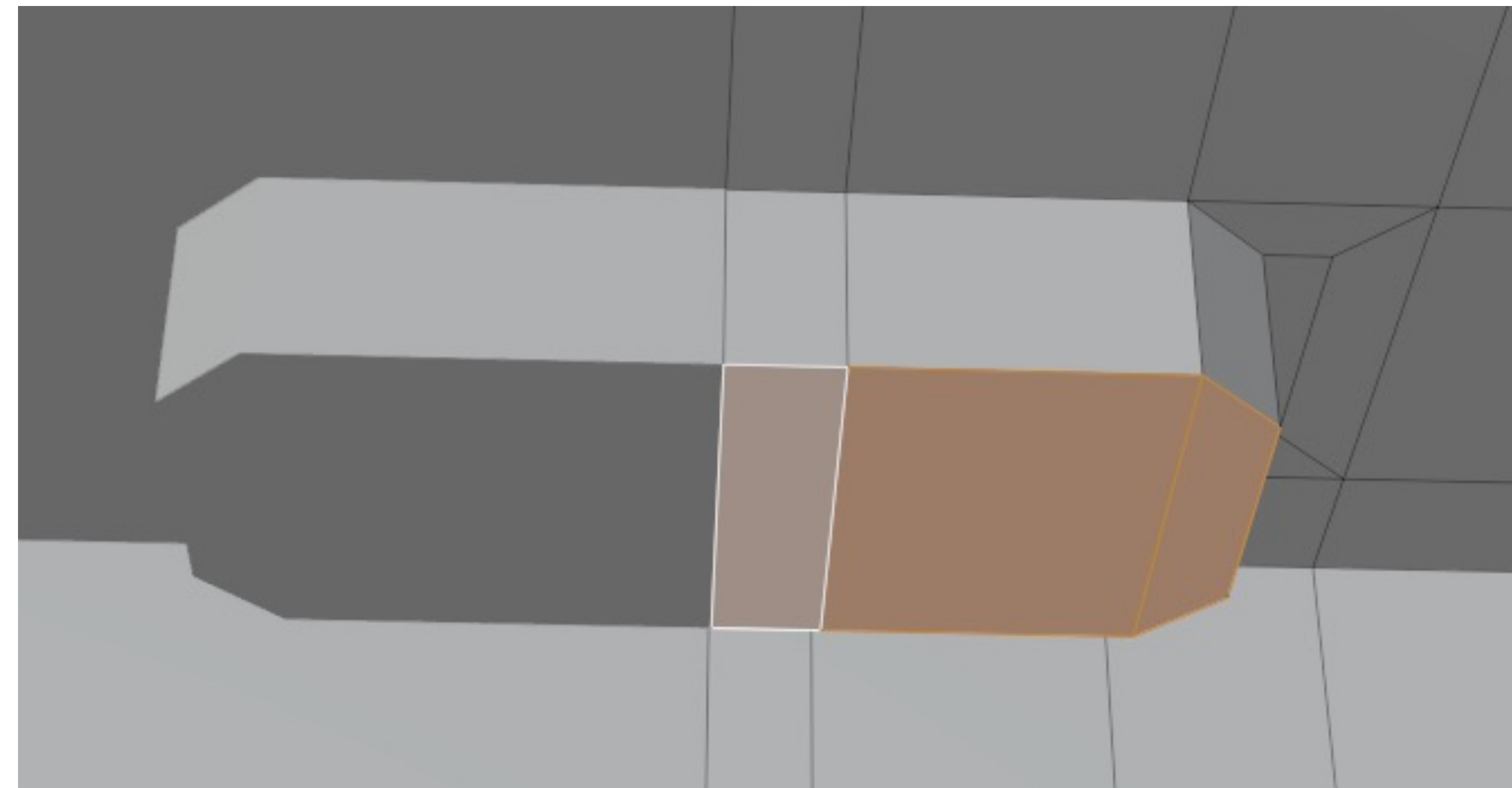
- two loops inside the machine
- inset last face for additional geometry
- select 3 faces for first part
- **CTRL + R** = loop cut
- **I** = inset
- **SHIFT + click** = multiple selection



Coffee outlet

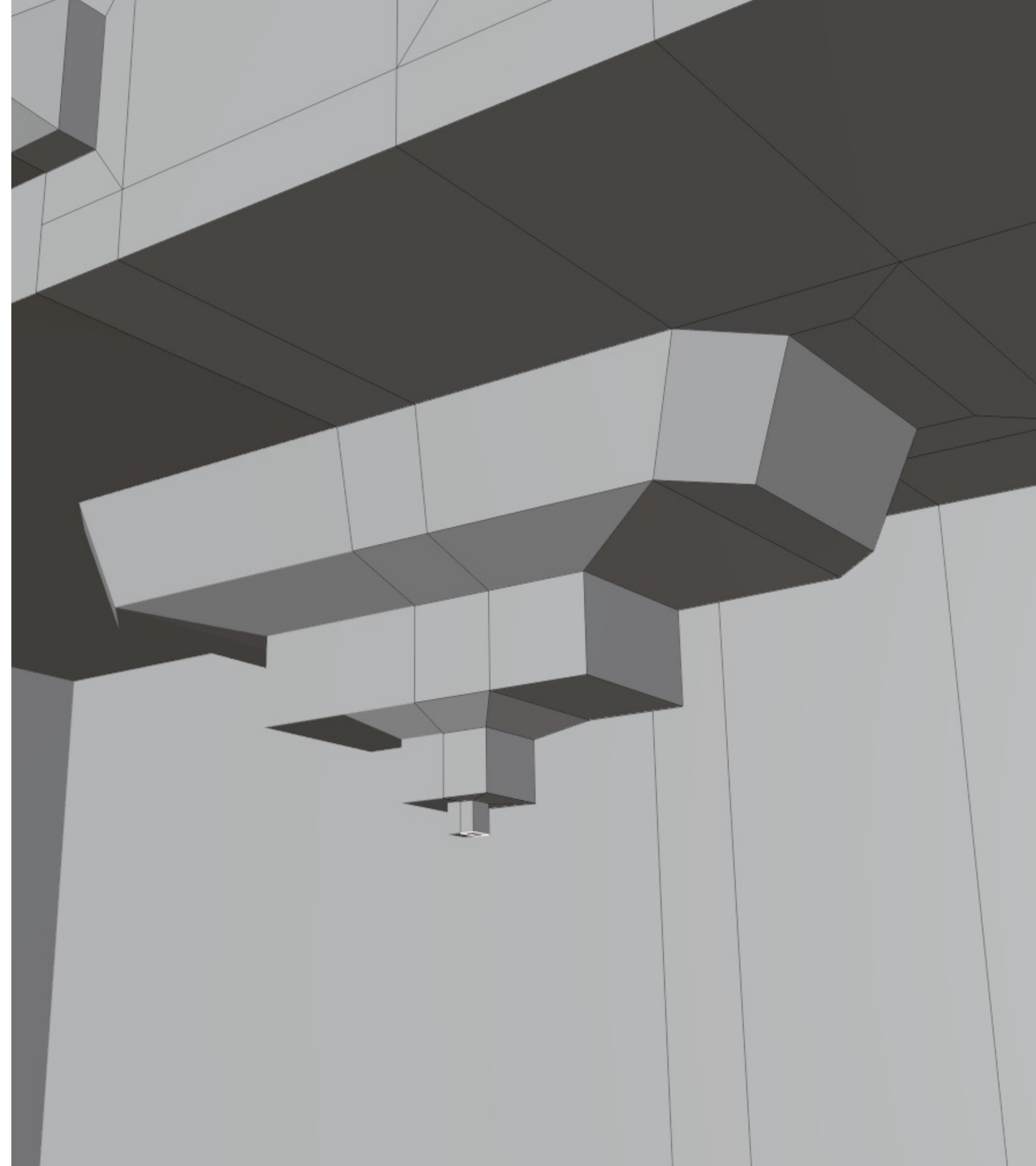
- extrude selected faces
- scale down (**! active element**)

- **E** = extrude
- **S** = scale



Coffee outlet

- repeat the process
- **I** = inset
- **E** = extrude
- **S** = scale



Door

- two loop cuts where the door will be

- **CTRL + R** = loop cut

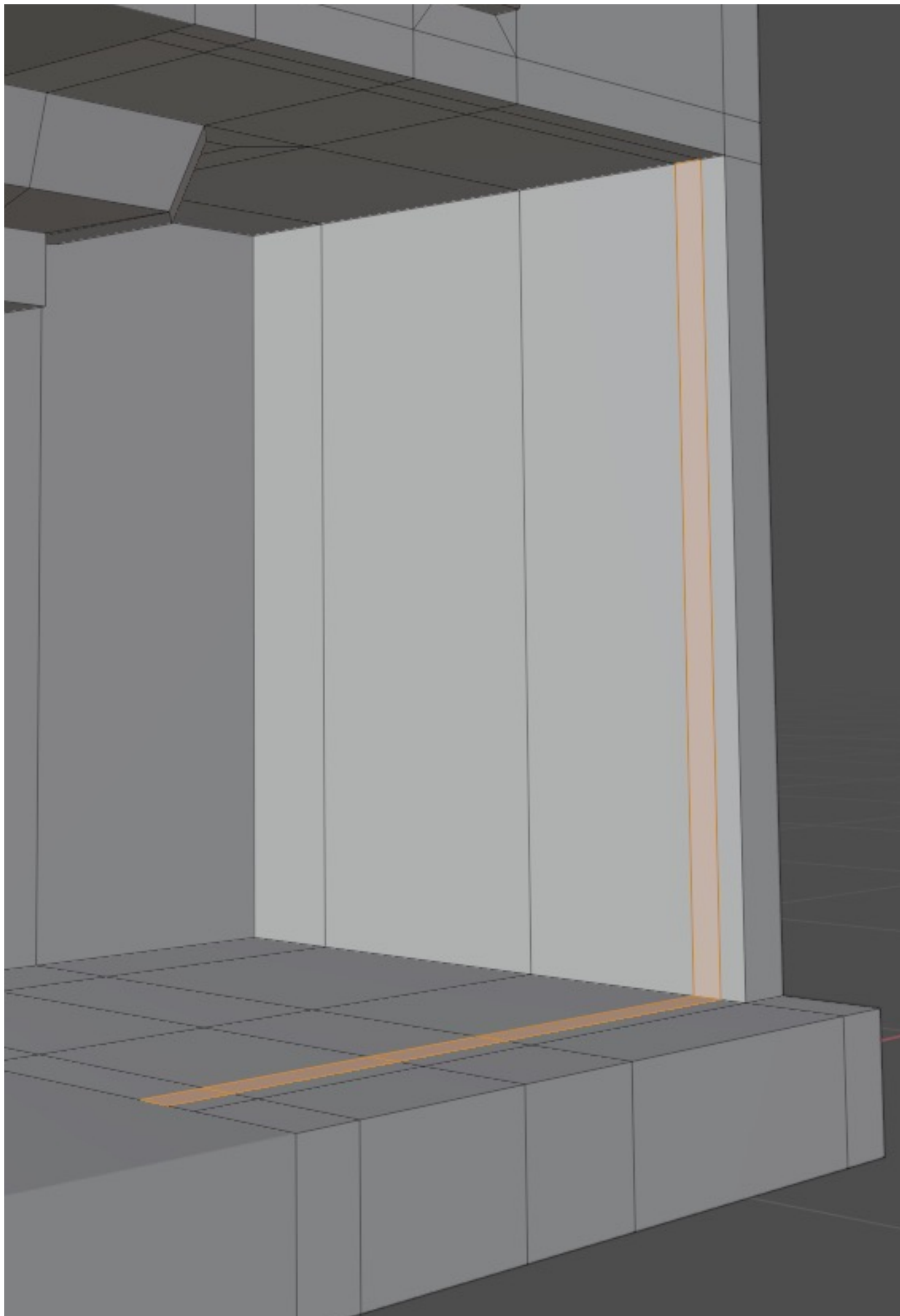


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Door

- two loop cuts where the door will be
- select bottom and side faces

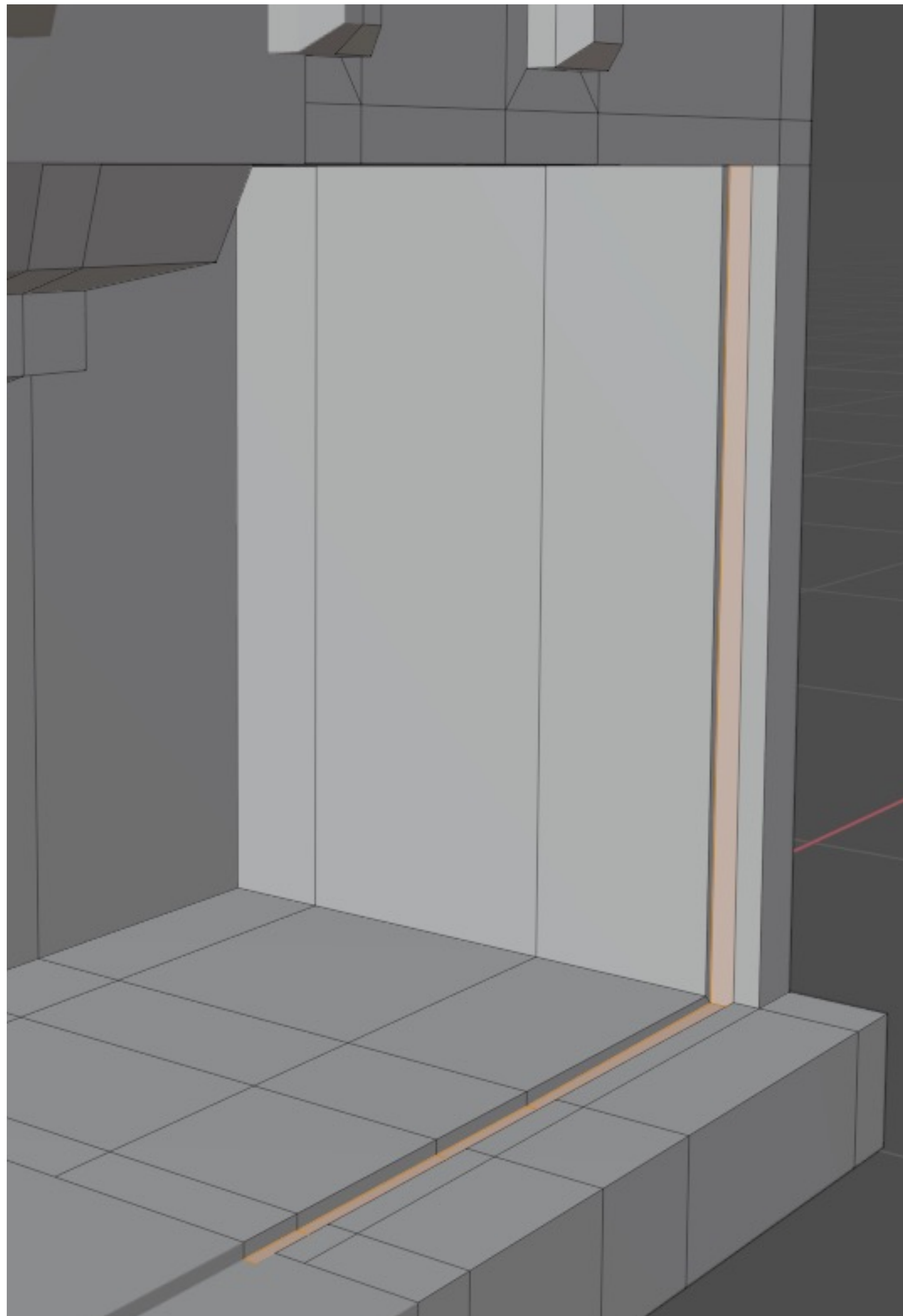
- **ALT + click** = loop selection



Door

- two loop cuts where the door will be
- select bottom and side faces
- extrude inside to create a ridge for the door

- **ALT + E => extrude along normals**

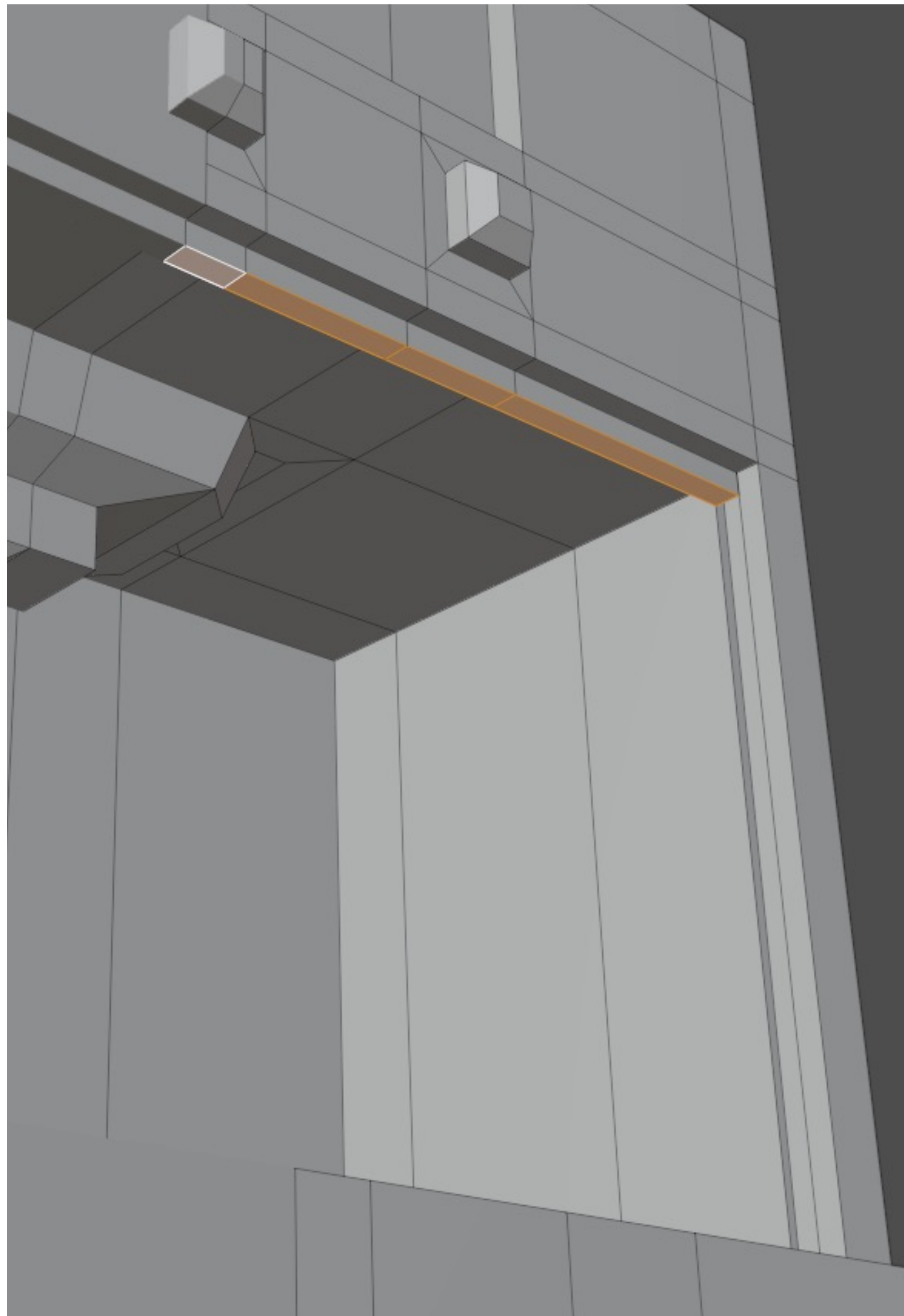


Door

- select top faces (the ones we left out)
- extrude down

- **SHIFT + click** = multiple selection

- **E** = extrude

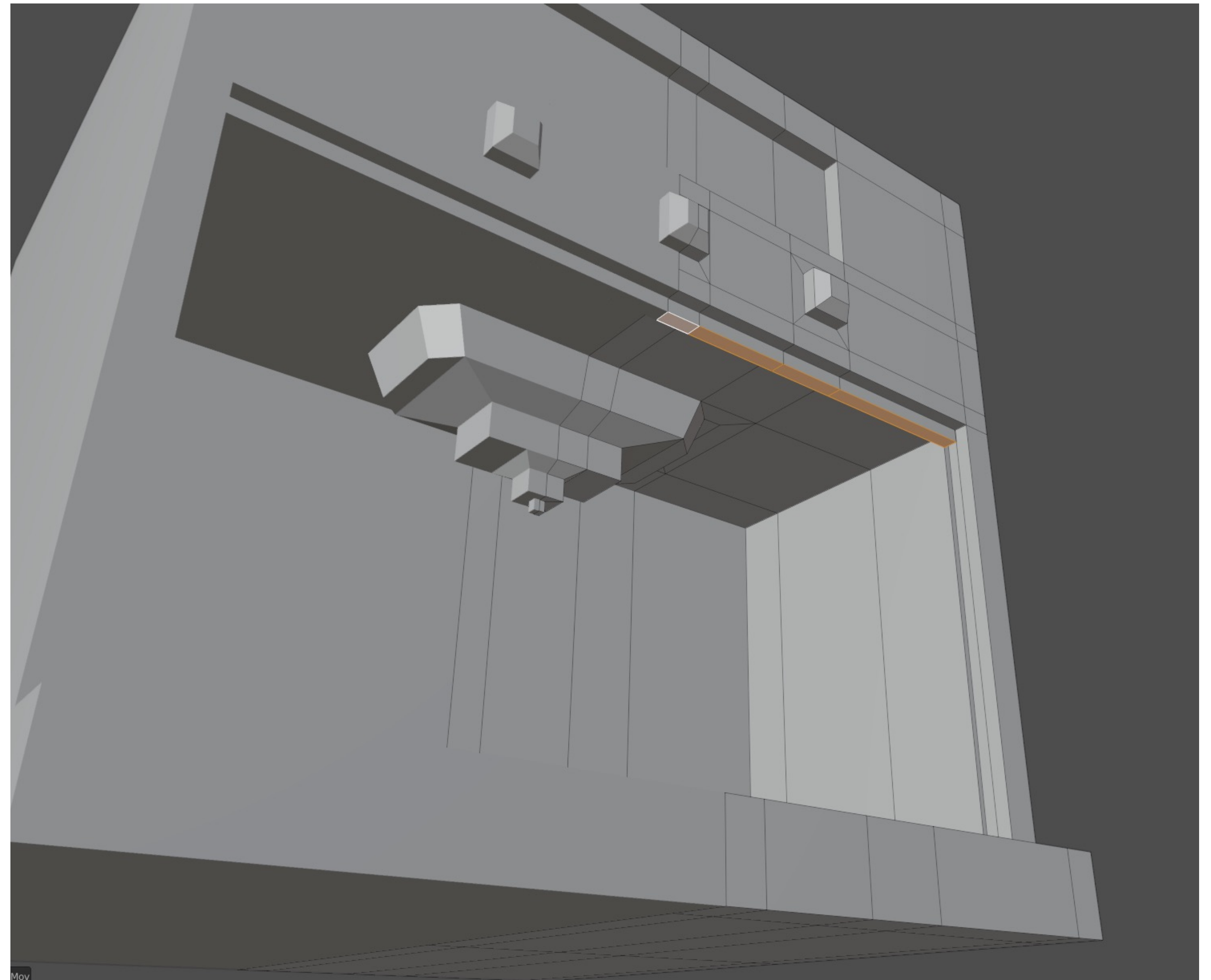




Checkpoint

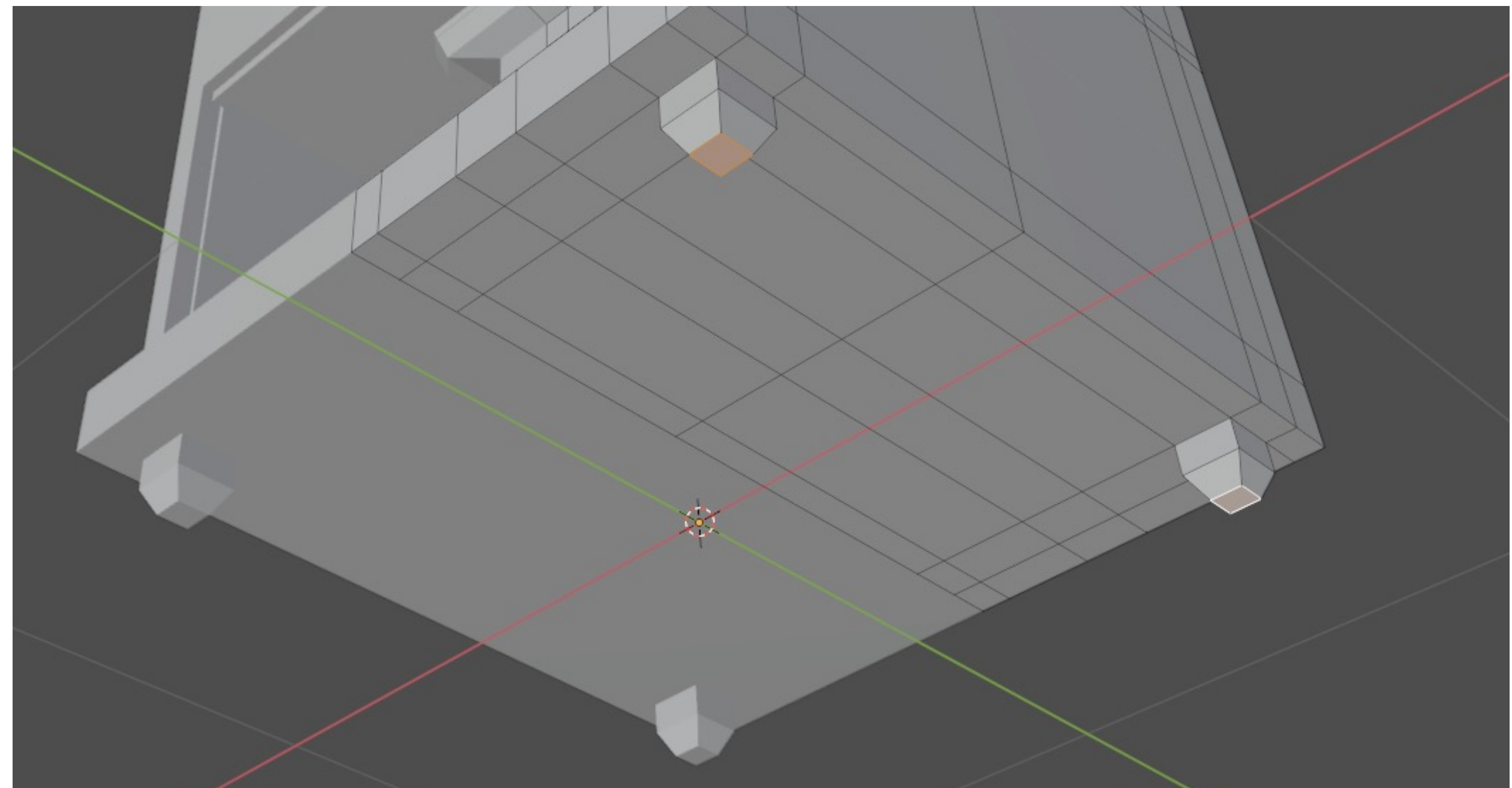
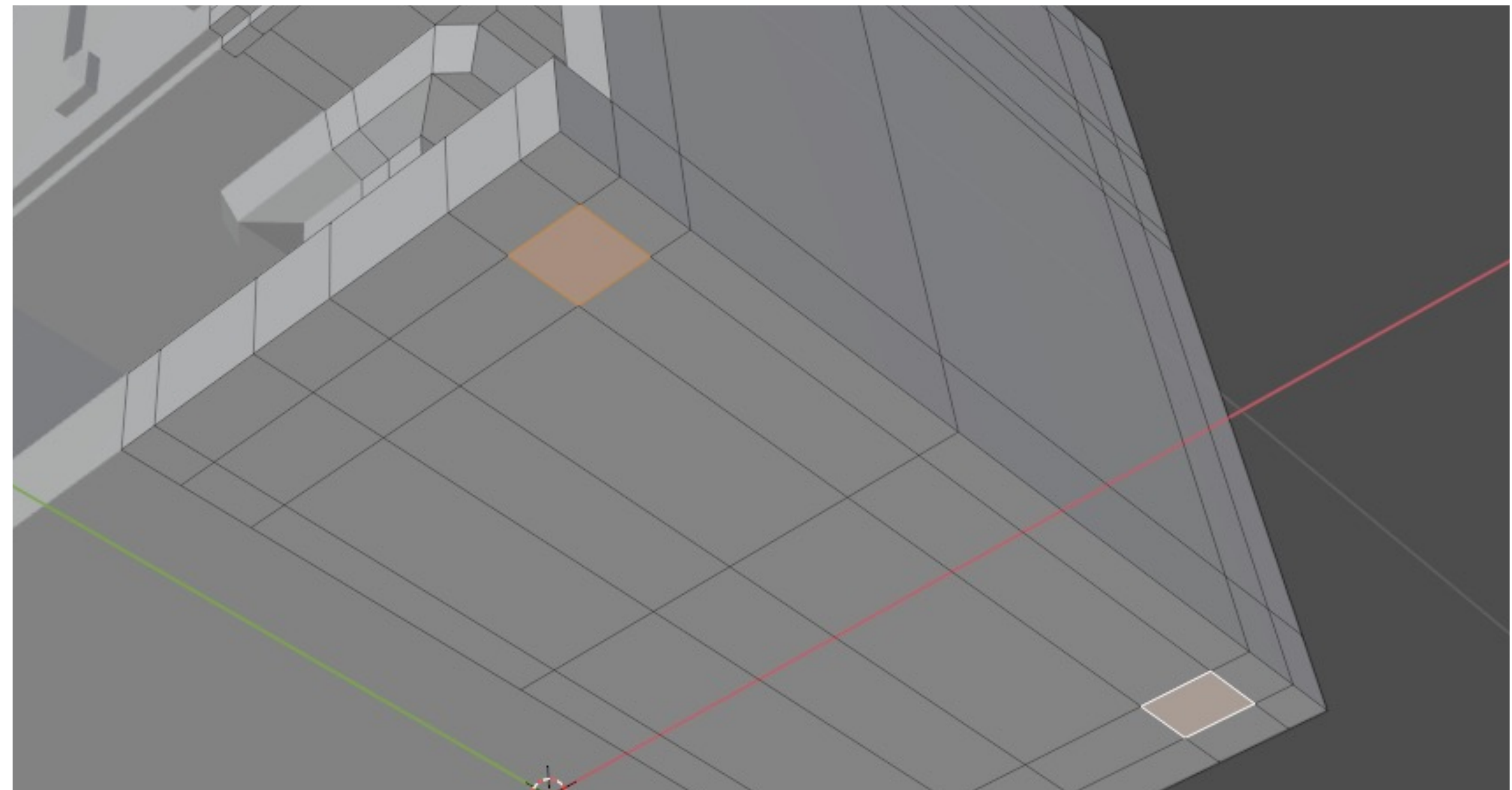
what you should have by now:

- coffee outlet
- ridge for the door
- door



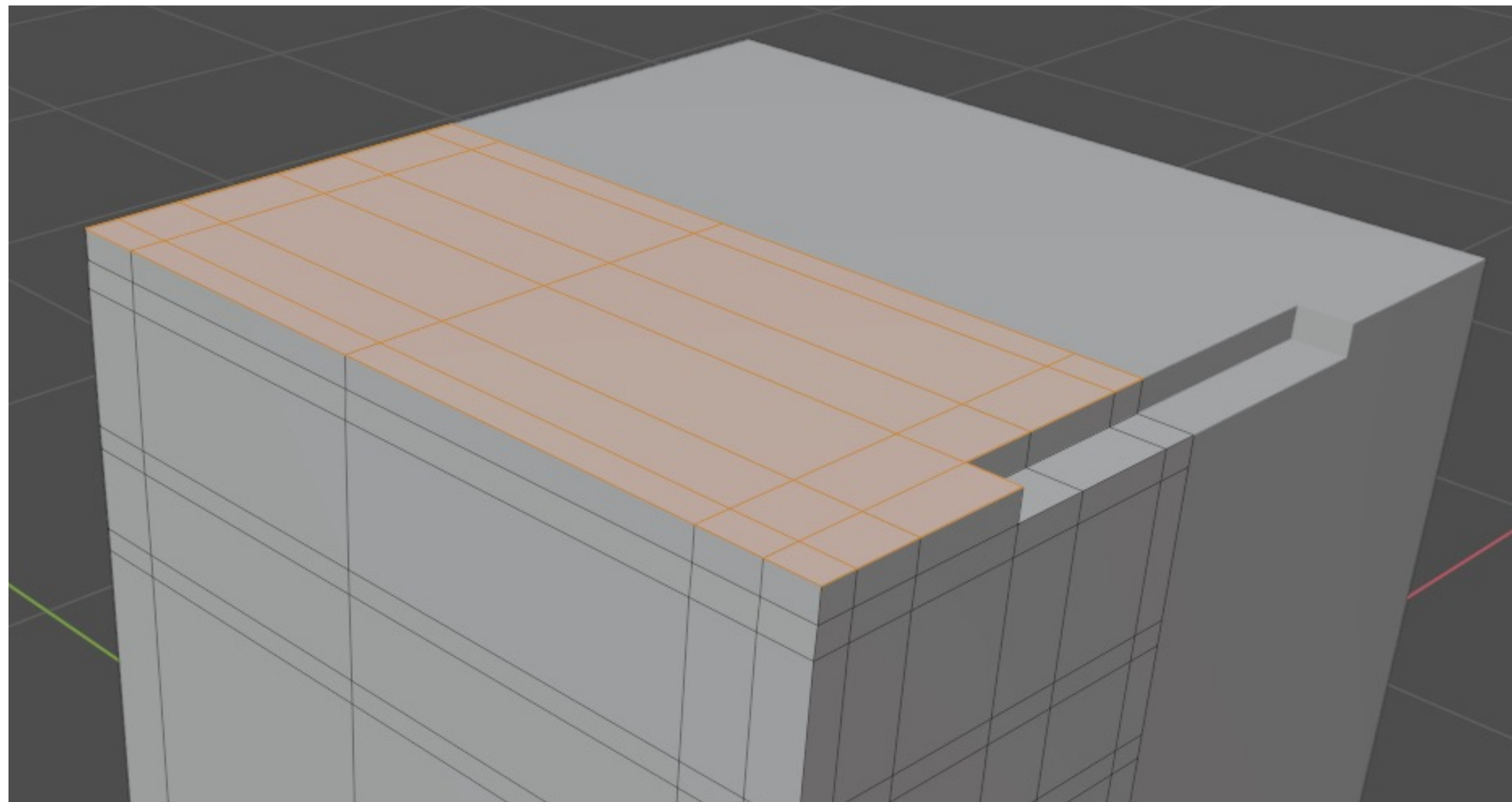
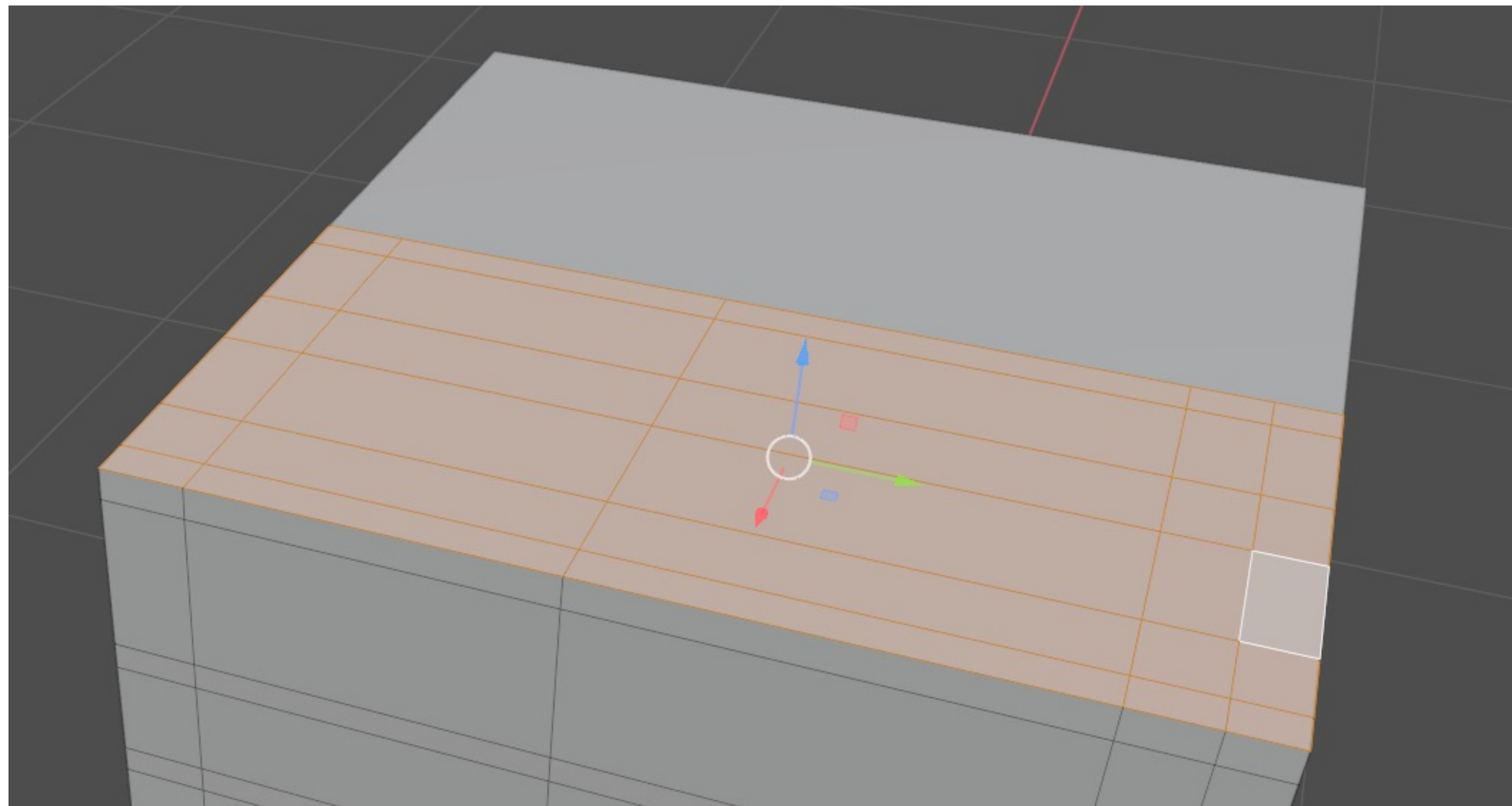
Legs

- add loop cuts to outline where the legs will be
- set "individual origins"
- extrude and scale
- **E** = extrude
- **S** = scale



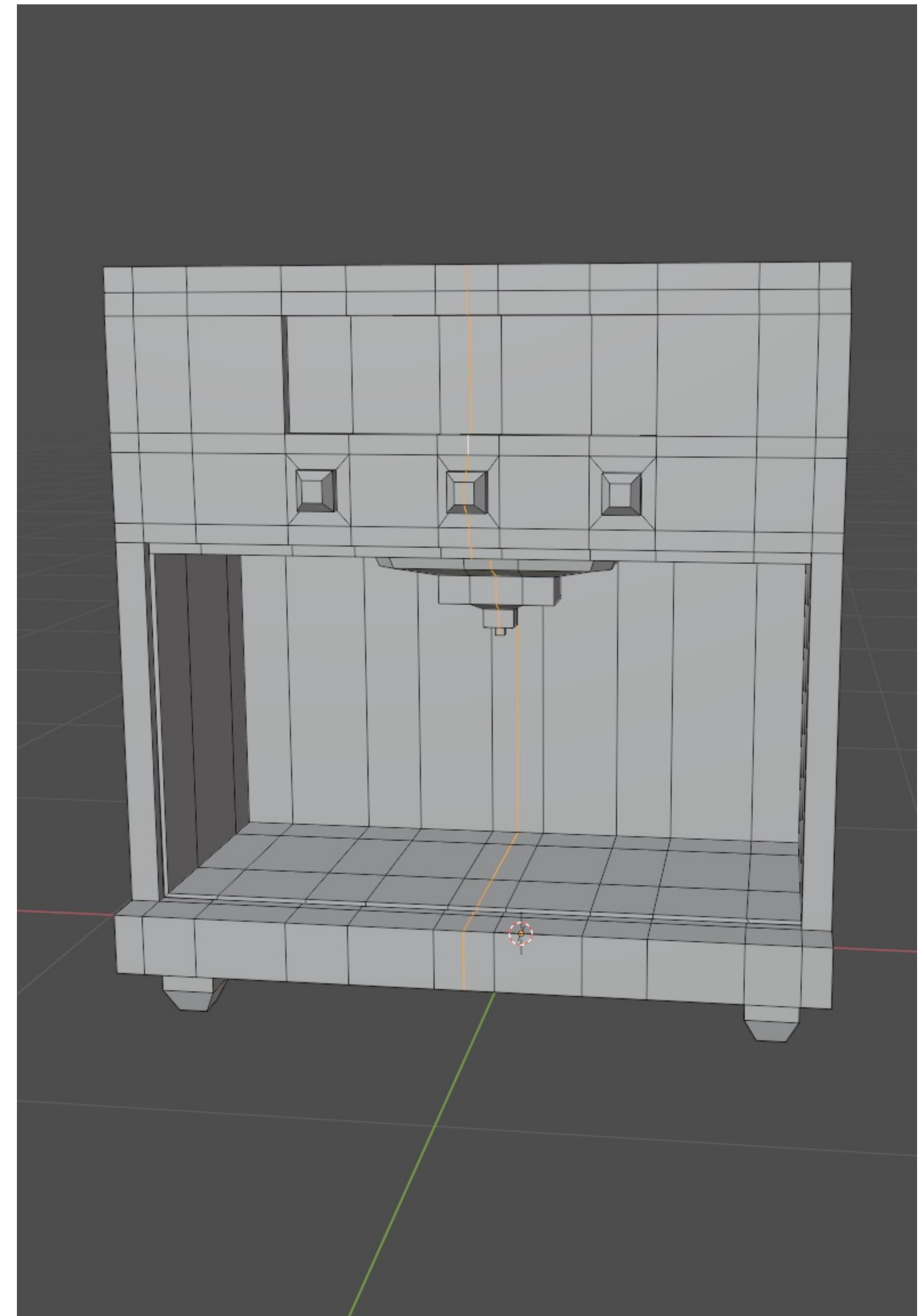
Top detail

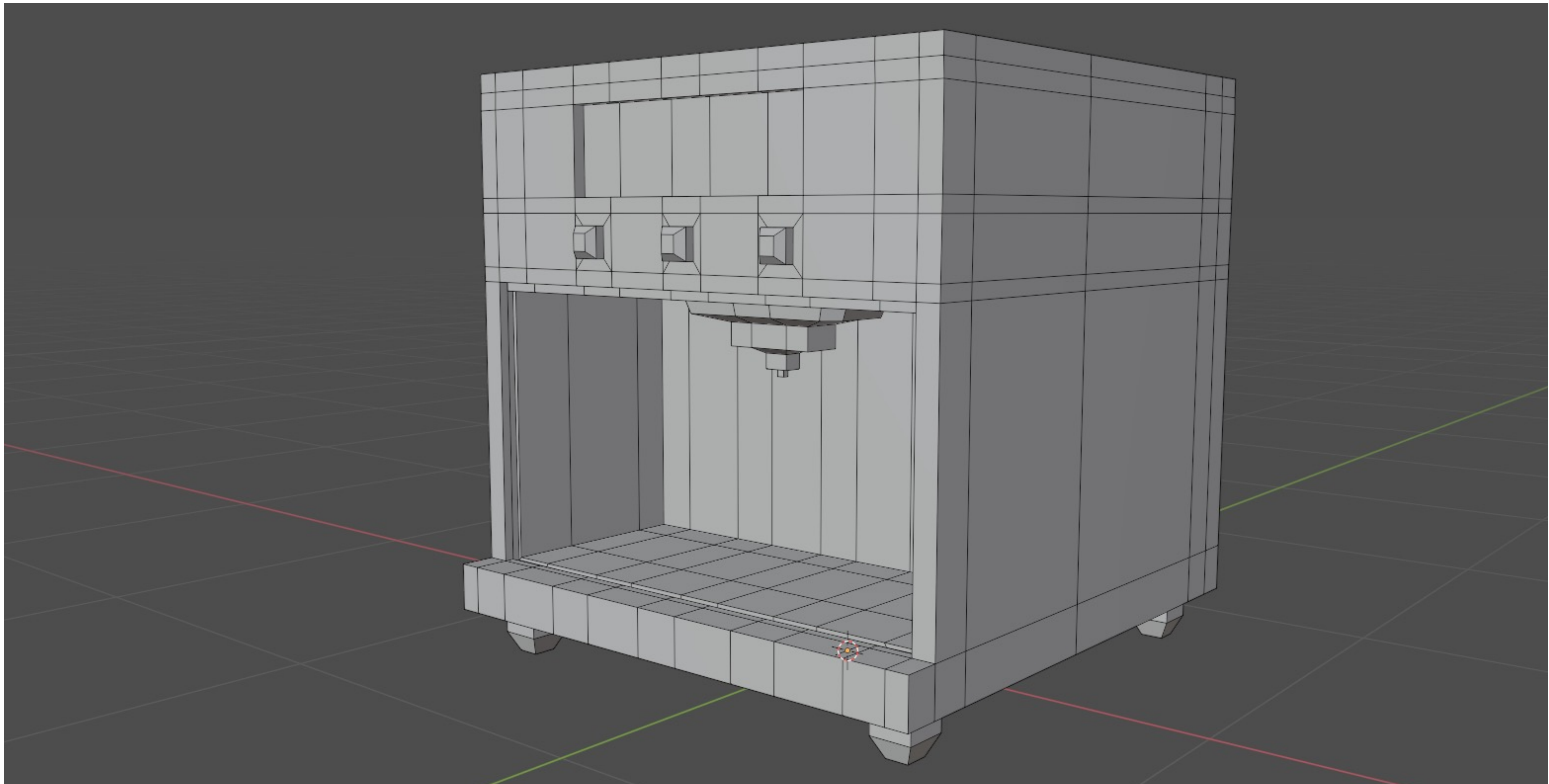
- select all top faces and move down for half of the height
- deselect last three faces
- extrude up
- **E** = extrude



Fixing details

- object mode
 - apply mirror modifier
- edit mode
 - select middle loop
 - dissolve it
- **ALT + click** = loop selection
- **X => dissolve edges**







materials and textures

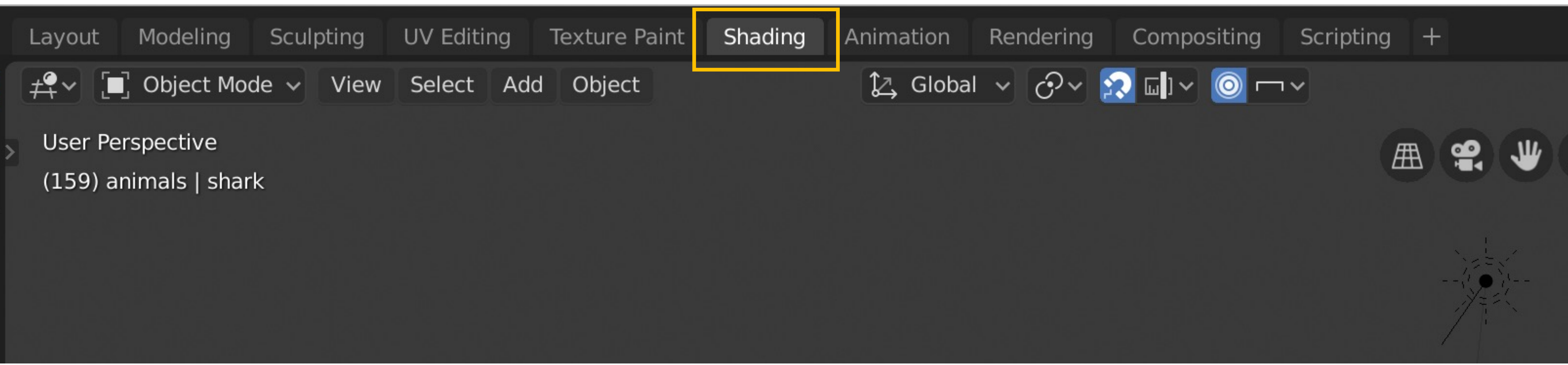


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Shading

- premade window layouts – easier to access Blender's functions
- shading layout for adding colors



/Users/zana/

Adobe.mmc..

Adobe.mmc.. AndroidStudi..

Applications Creative Clo..

Desktop Documents

Downloads IdeaProjects

Object Mode View Select Add Object Global

User Perspective (1) Collection | Cube

Scene Collection

- Collection
 - Camera
 - Cube
 - Light

Scene World

World

Surface

Use Nodes

Surface Background

Color

Strength 1.000

Volume

Viewport Display

Custom Properties

View + New

Object View Select Add Node Use Nodes Slot 1 Material

Principled BSDF

GGX

Christensen-Burley

Base Color

Subsurface: 0.000

Subsurface Radius

Subsurface Color

Metallic: 0.000

Specular: 0.500

Specular Tint: 0.000

Roughness: 0.400

Anisotropic: 0.000

Anisotropic Rotation: 0.000

Sheen: 0.000

Sheen Tint: 0.500

Clearcoat: 0.000

Clearcoat Roughness: 0.030

IOR: 1.450

Transmission: 0.000

Transmission Roughness: 0.000

Material Output

- All
- Surface
- Volume
- Displacement

View

/Users/zana/

Adobe.mmc..

Adobe.mmc.. AndroidStudi..

Applications Creative Clo..

Desktop Documents

Downloads IdeaProjects

Object Mode View Select Add Object

Global

User Perspective
(1) Collection | Cube

Scene

Scene Collection

- Collection
- Camera
- Cube
- Light

World

World

Surface

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Clearcoat: 0.000

Clearcoat Roughness: 0.030

IOR: 1.450

Transmission: 0.000

Transmission Roughness: 0.000

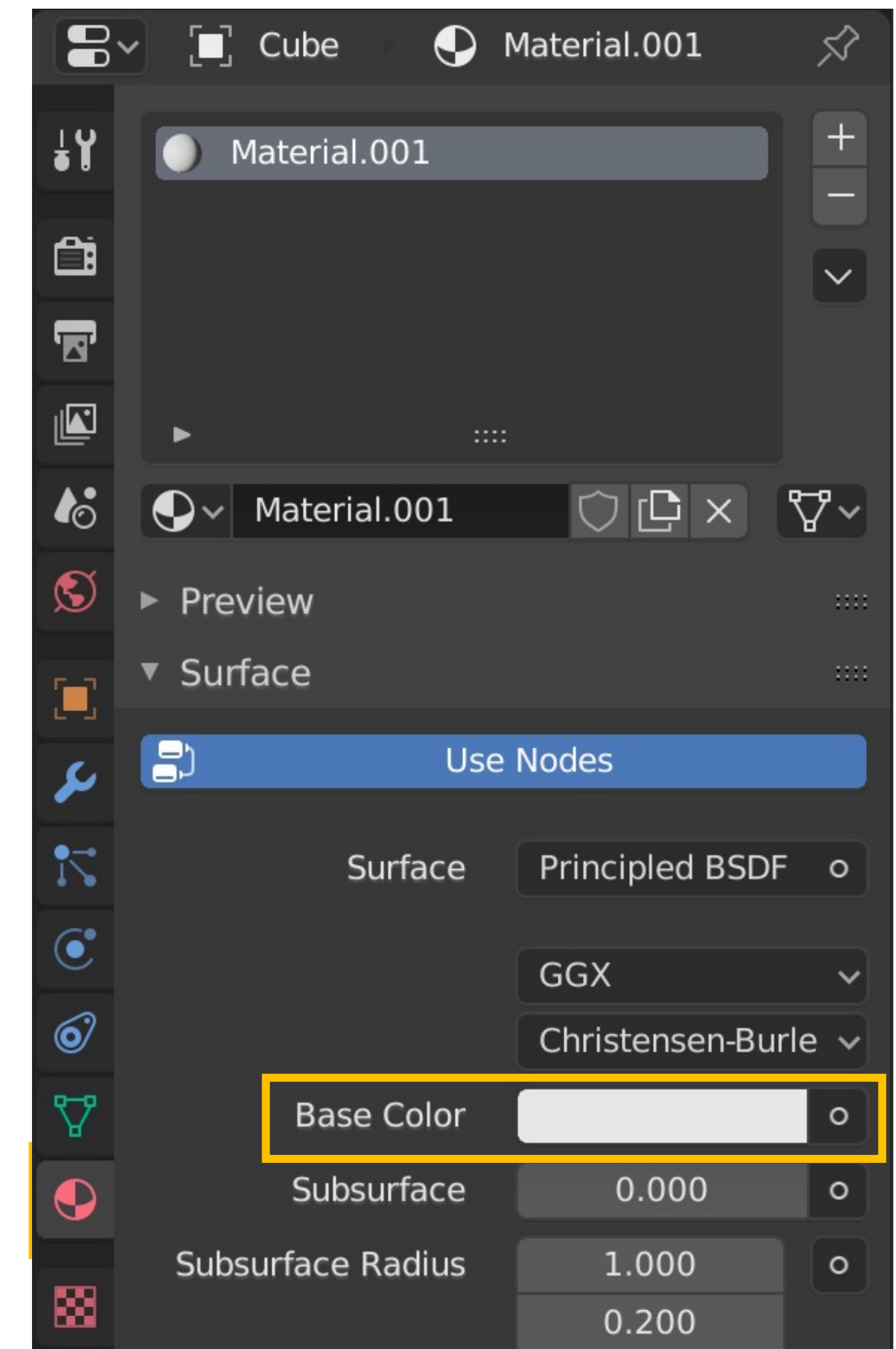
Material Output

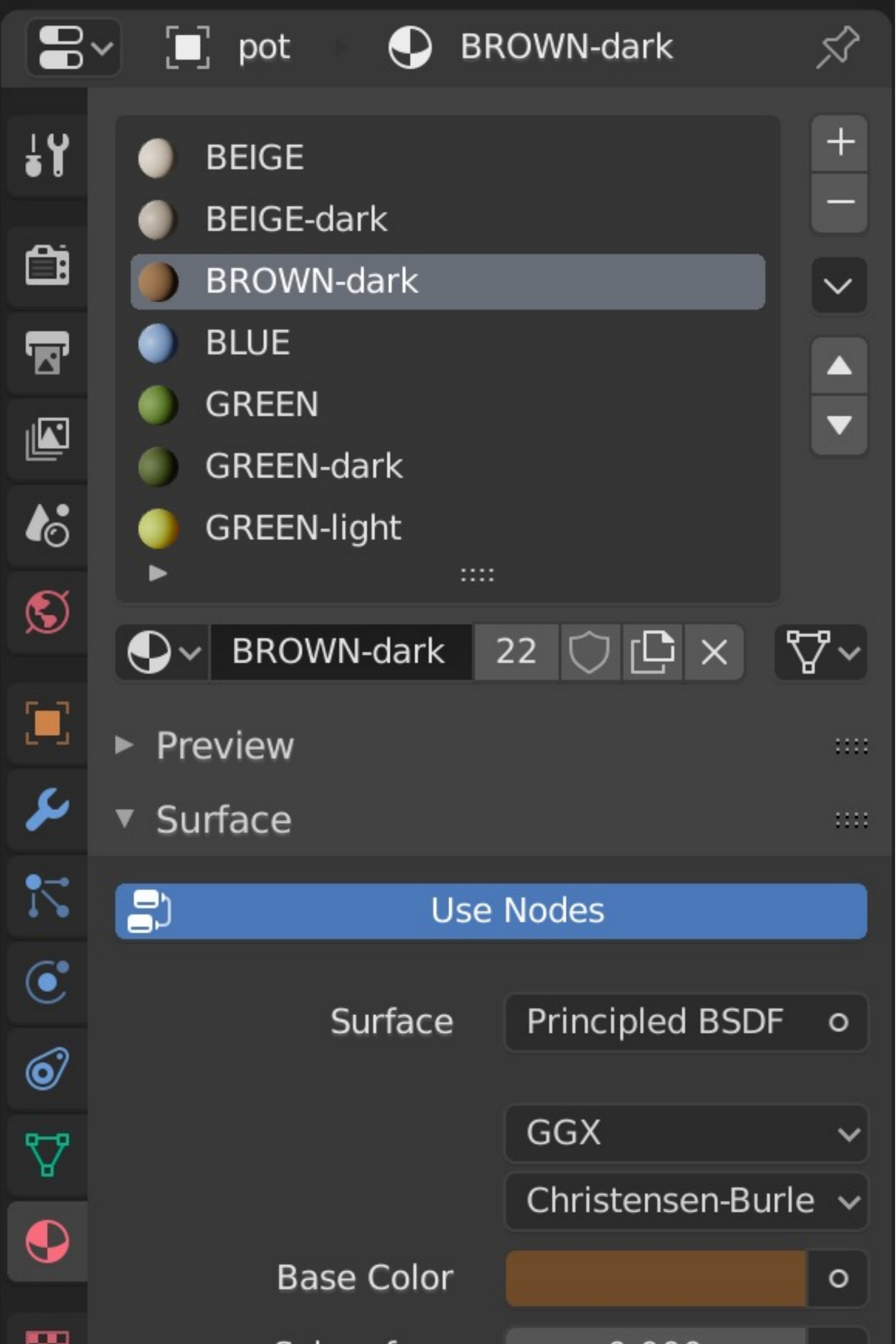
- All
- Surface
- Volume
- Displacement



Adding new material

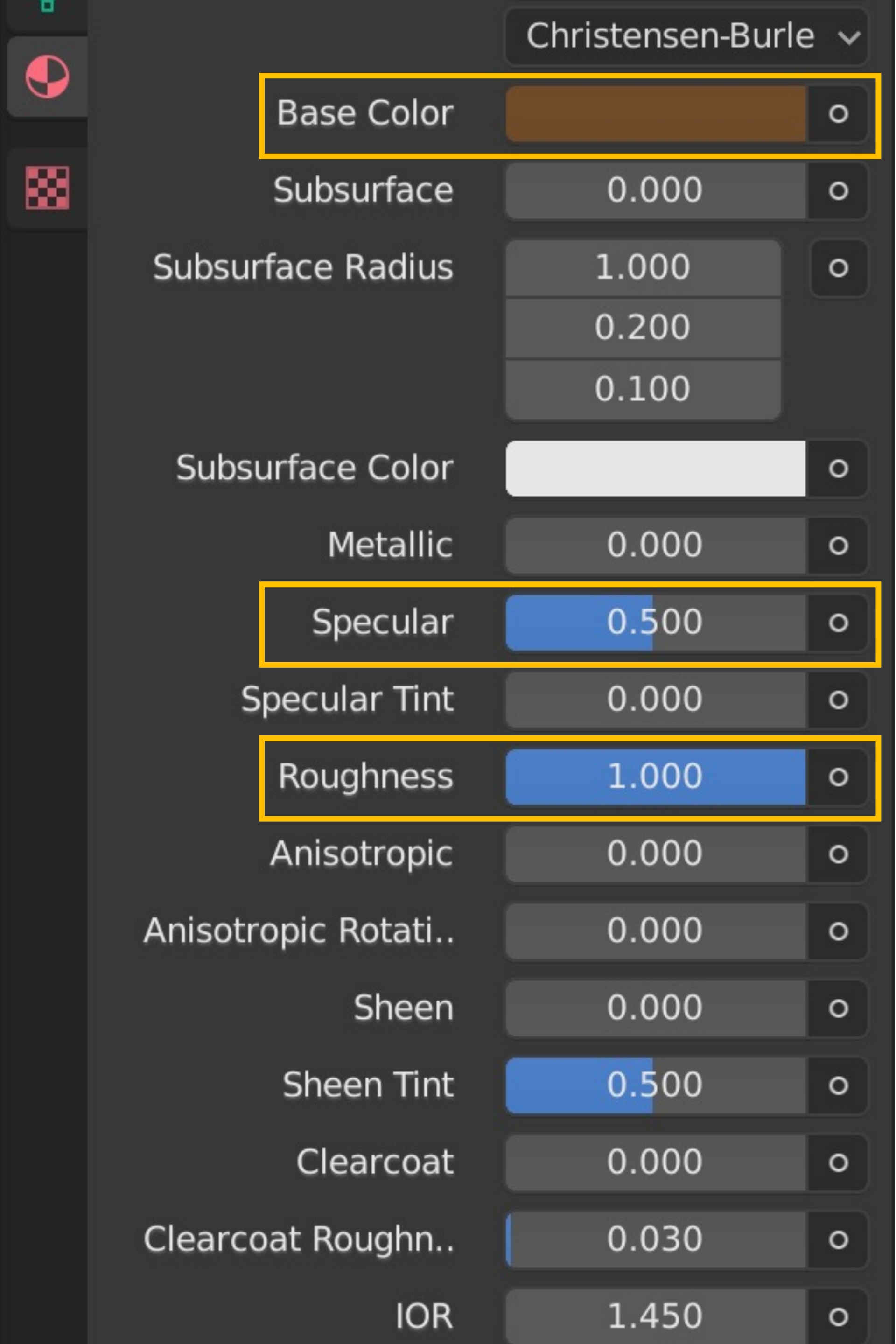
- material tab
- empty space – materials don't exist yet
- concept of assigning slots
 - create new slot for material
 - create the material for created slot
- choose base color by clicking the white square





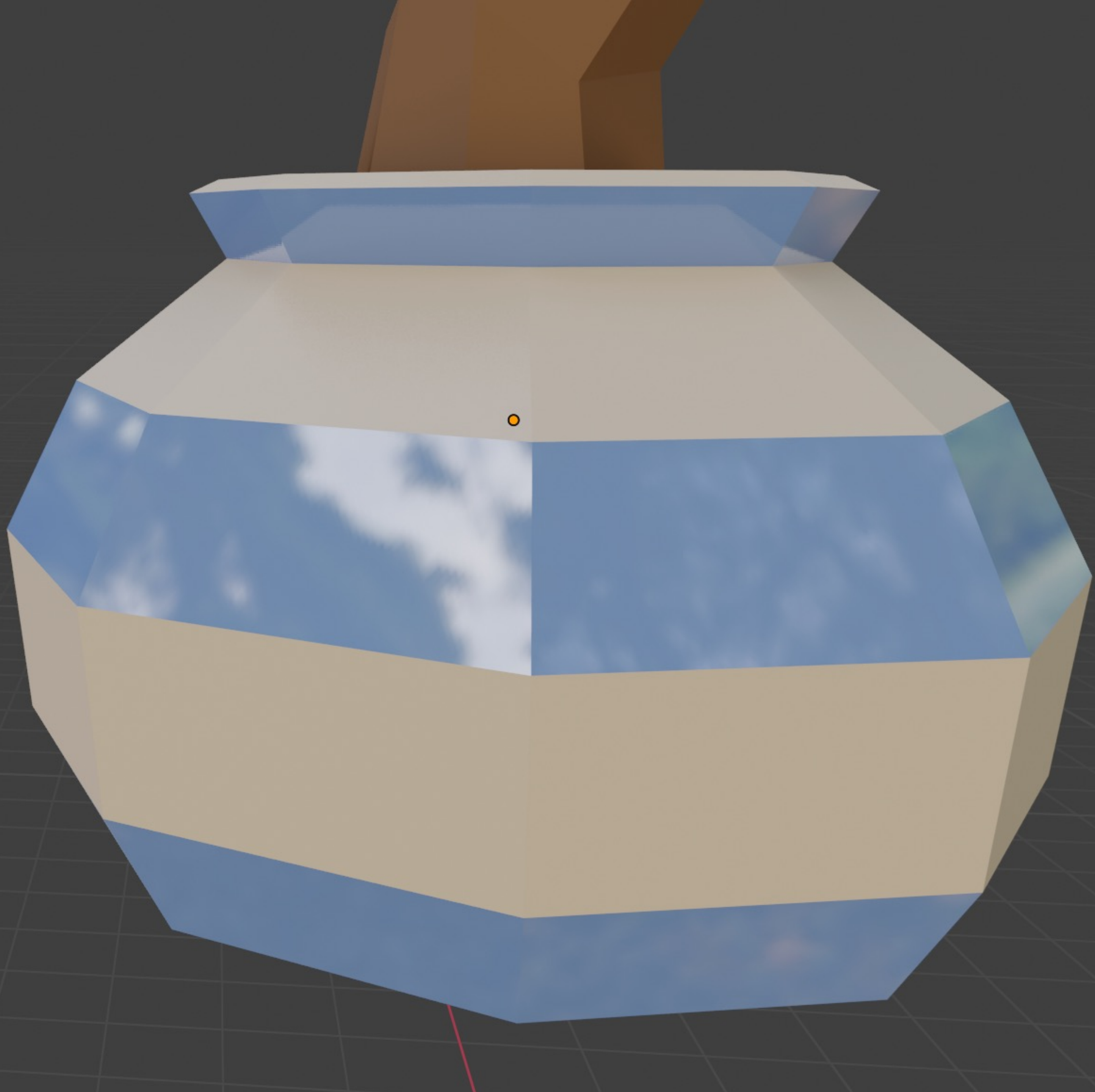
Materials

- creation of different materials
- correctly naming created materials
- a lot of options – which are important?



Materials

- base color
- specular – defines level of reflectivity
 - 0 => no reflections
 - 1 => maximum reflectivity
- roughness – defines the sharpness of edges
 - 0 => sharp mirror like reflections
 - 1 => blurred edges



Surface Principled BSDF

GGX

Christensen-Burle

Base Color

Subsurface 0.000

Subsurface Radius 1.000
0.200
0.100

Subsurface Color

Metallic 0.000

Specular 1.000

Specular Tint 0.000

Roughness 0.000

Anisotropic 0.000

Anisotropic Rotati.. 0.000

Sheen 0.000

Sheen Tint 0.500

Clearcoat 0.000

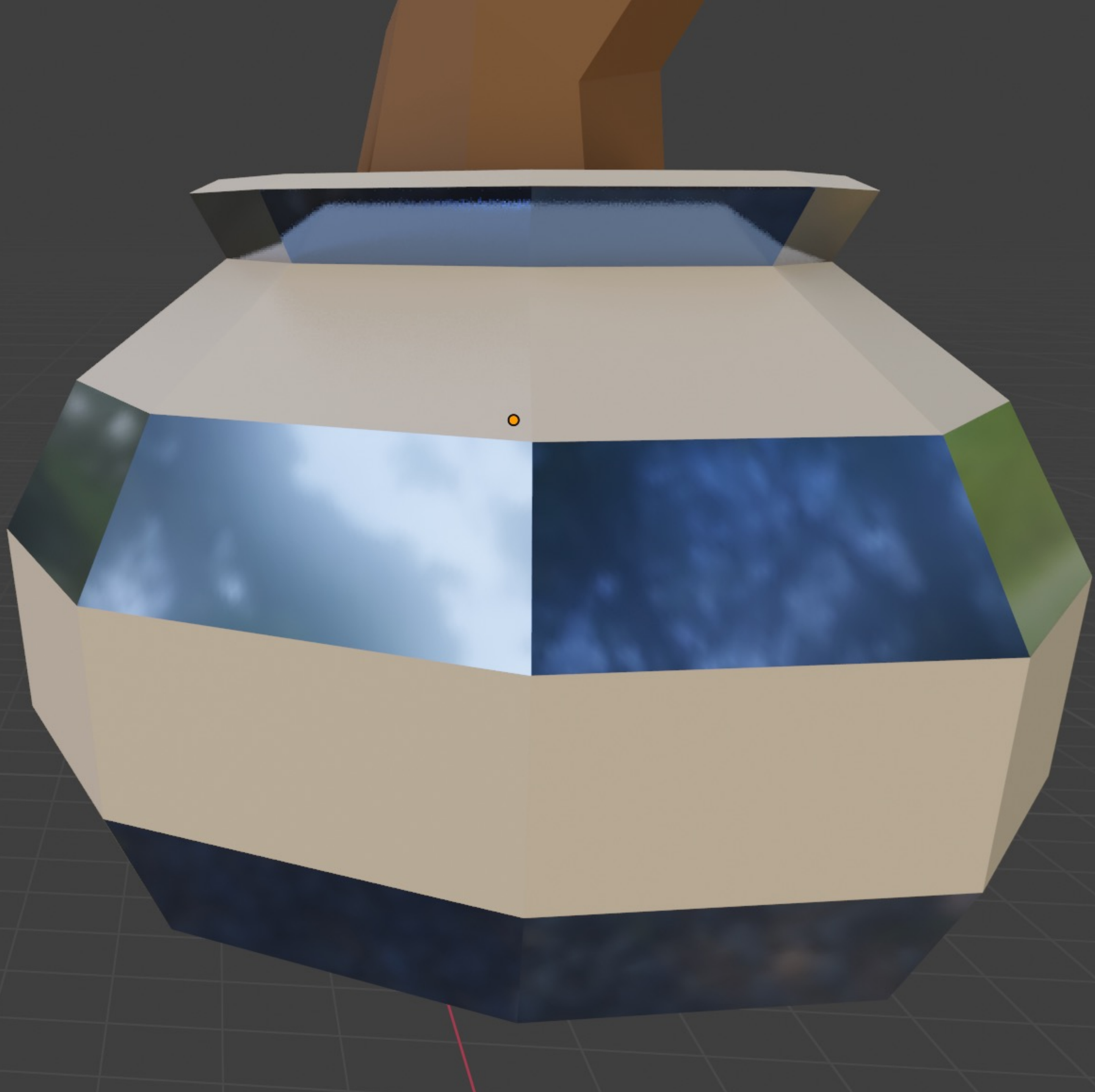
Clearcoat Roughn.. 0.030

IOR 1.450

Transmission 0.000

Transmission Rou.. 0.000

Emission



Surface Principled BSDF

GGX

Christensen-Burle

Base Color

Subsurface 0.000

Subsurface Radius 1.000

0.200

0.100

Subsurface Color

Metallic 1.000

Specular 1.000

Specular Tint 0.000

Roughness 0.116

Anisotropic 0.000

Anisotropic Rotati.. 0.000

Sheen 0.000

Sheen Tint 0.500

Clearcoat 0.000

Clearcoat Roughn.. 0.030

IOR 1.450

Transmission 0.000

Transmission Rou.. 0.000

Emission



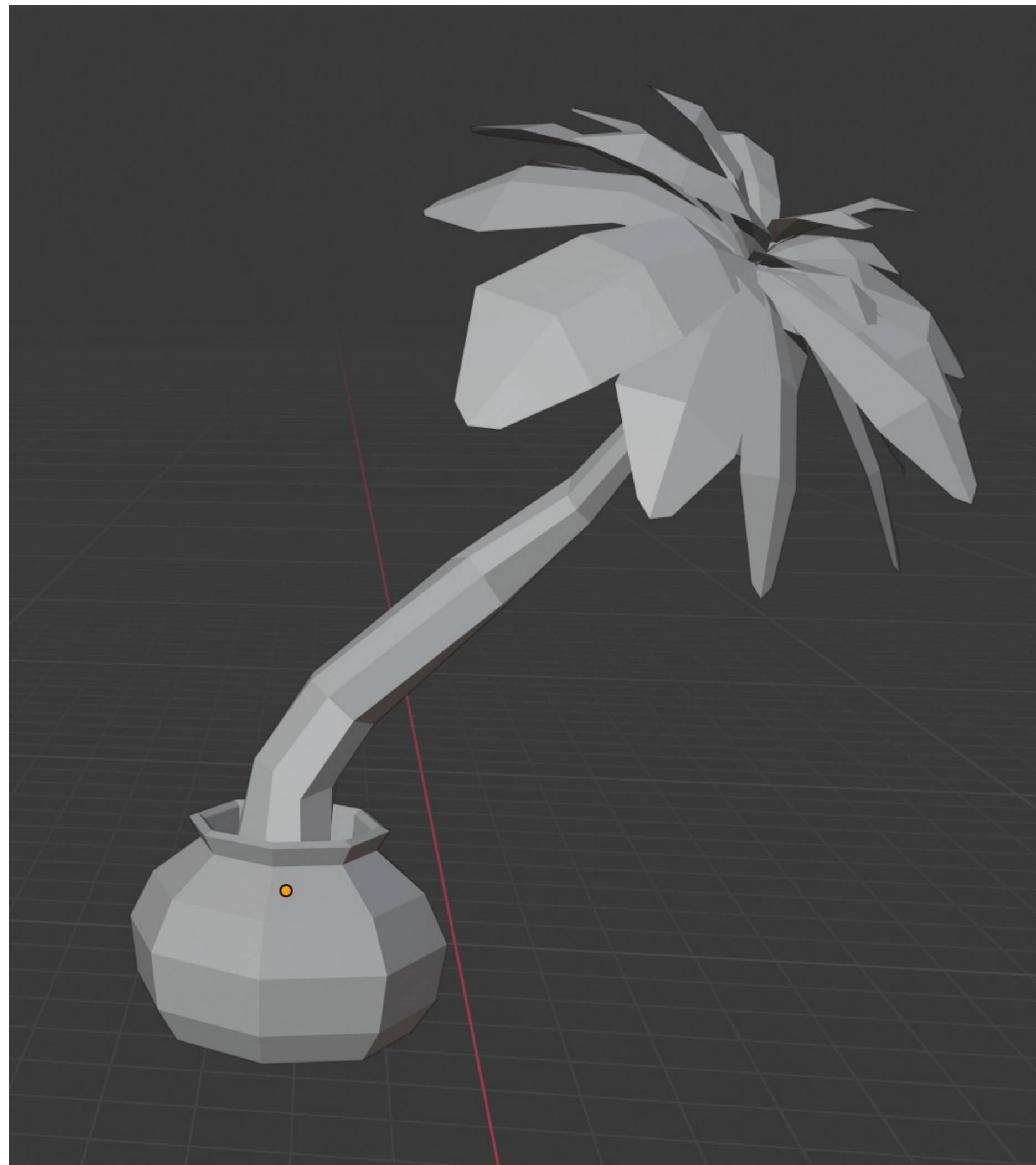
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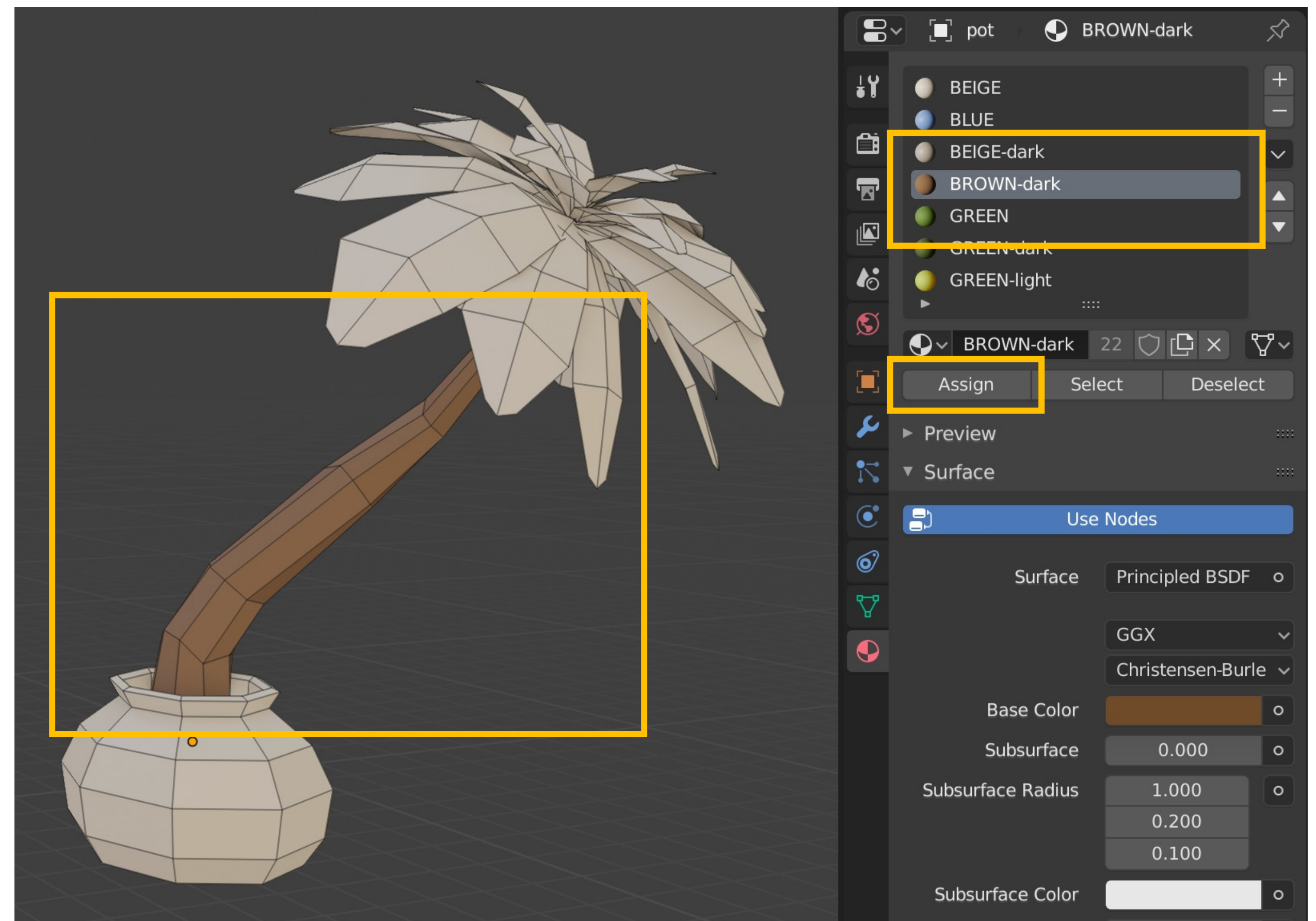
LMME

Multicolored object



Adding materials to faces

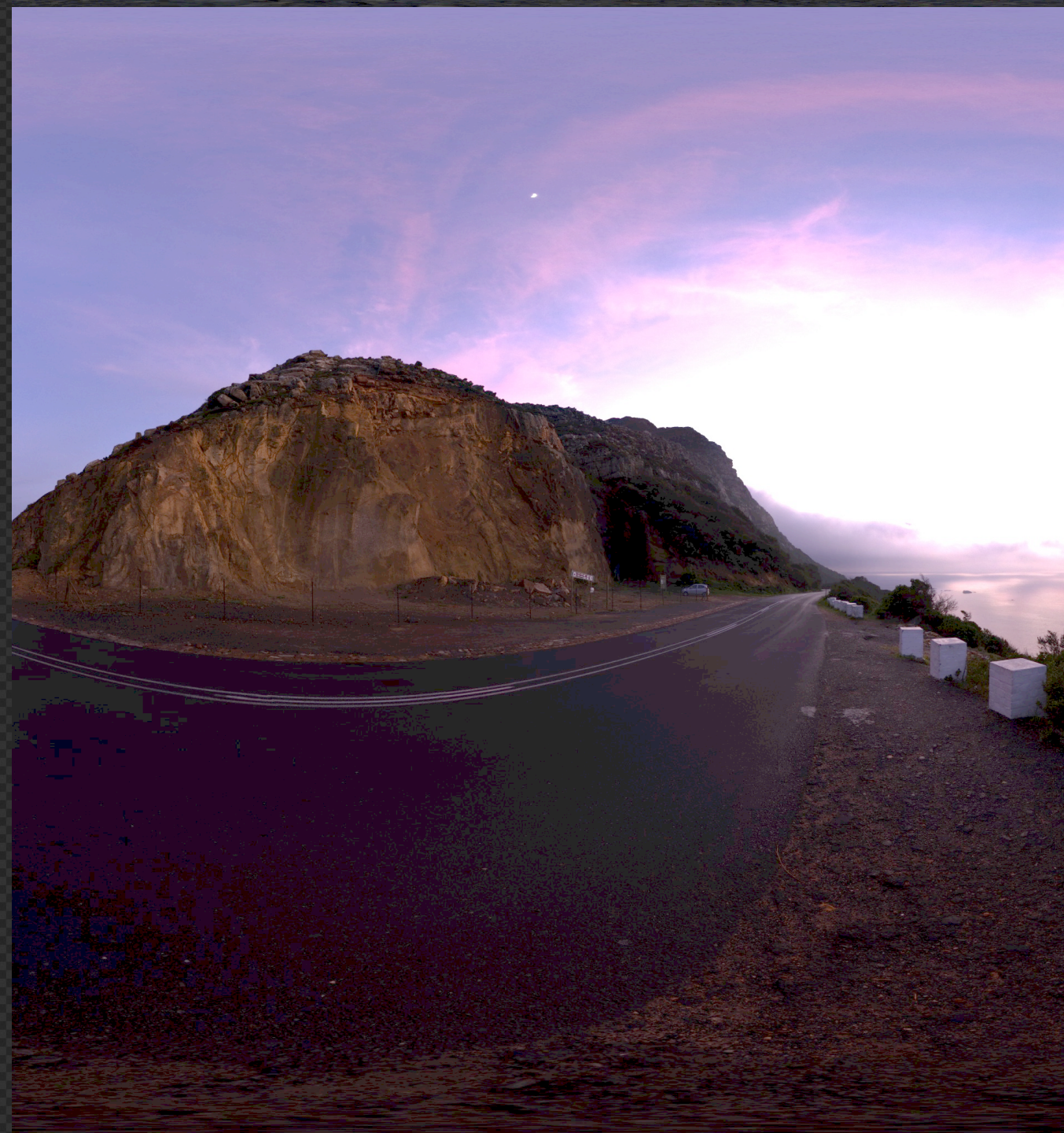
- edit mode (**TAB**)
- select faces the material will be assigned to
- select material
- button assign



HDRI

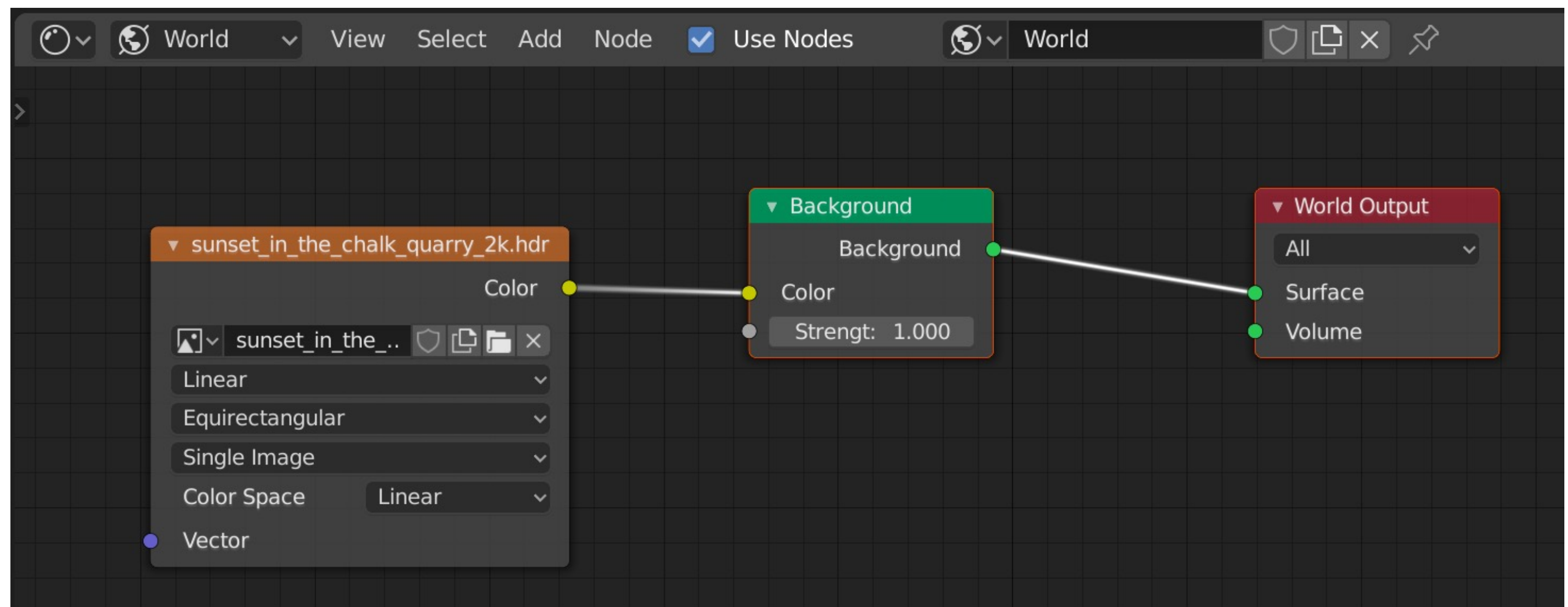
- HDRI = High Dynamic Range Image
- image format that contains information about the lighting
- to achieve realistic and convincing shadows, highlights and reflections





Adding HDRI

- shading => world tab
- add new node => **SHIFT + A > texture > environment texture**
- select HDRI image (**open**)
- connect added node with background node



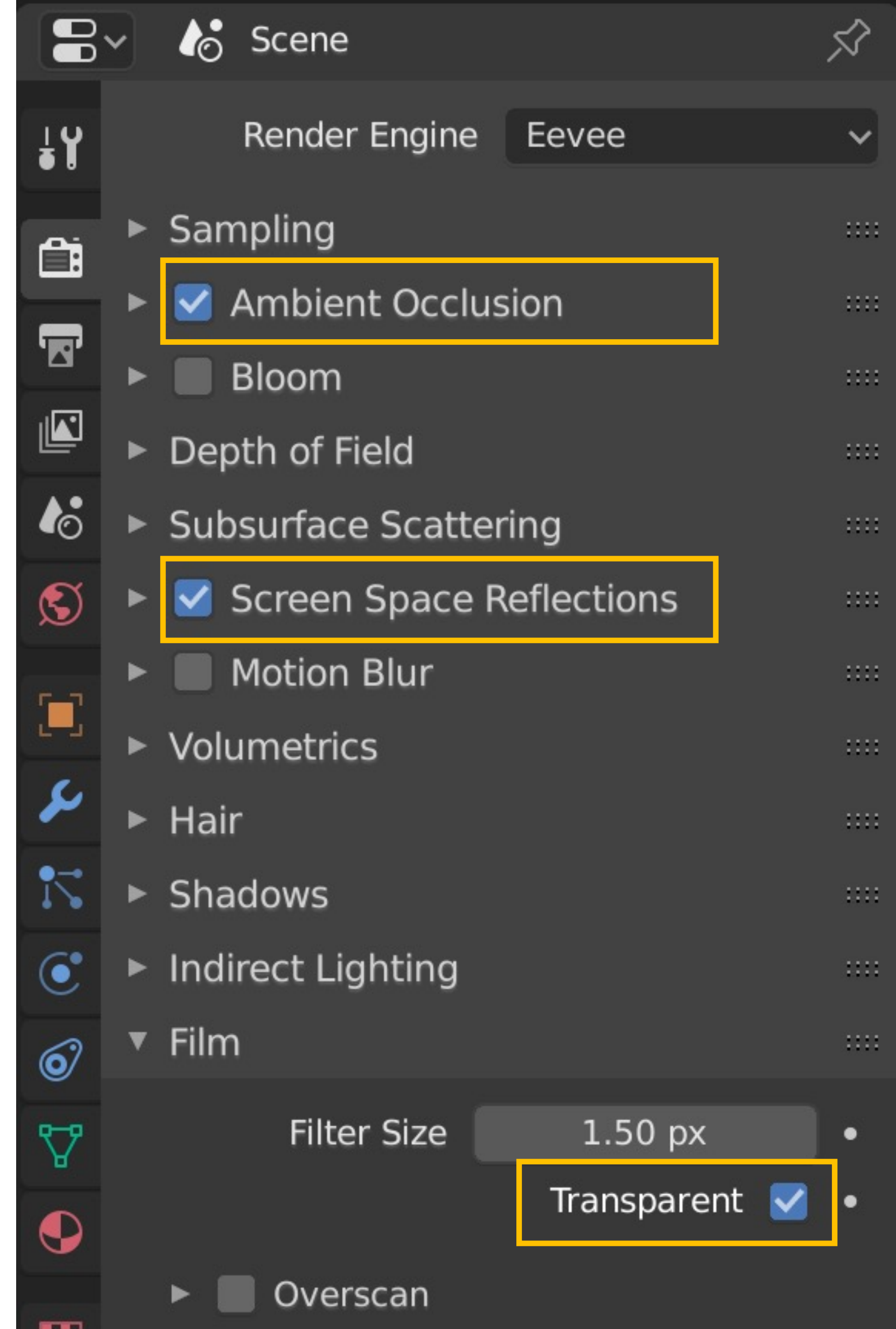
Background

- HDRI is by default shown in your background and in final render
- we want transparent background
- How can we achieve this?



Transparent background

- render => film => transparent
- *while we're at it* – also check:
 - Ambient Occlusion
 - Screen Space Reflections



mmc@lmmfe.org

in case you have any additional questions 😊



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THANK YOU!